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ABSTRACT

These four 1989 issues of the journal of the Society for Accelerated Learning and Teaching (SALT) include the following articles: "Retraining Cognitive Abilities: Combining Suggestopedia with Cognitive Behavior Modification"; "Students Discover the Joy of Learning Through Suggestopedia"; "Elementary School Achievement Results Following In-Service Training of an Entire School Staff"; "Defining and Demystifying Baroque, Classic and Romantic Music"; "Retraining Cognitive Abilities with Suggestopedia and Cognitive Behavior Modification. Part II: A Longitudinal Study"; "Tell the Juggler: A Gameshow Metaphor for Teaching the IBM-PC and its Assembly Language"; "Should We Believe the National Research Council's Criticism of SALTT?"; "Achieving Successful Whole Brain Thinking"; "Prefocused Mapping: A Workable Strategy for the Developmental Writer"; "Releasing Reserve Capacities"; "Personality of Teachers Using SALT"; "Applications of Peak Performance/Accelerated Learning Approaches to Vocational Education"; "The Temperaments and Waldorf Education"; "The Influence of Accelerated Learning Methods on Scholastic Achievement: Implications for Teacher Education?"; "Creative Writing and Visual Imagery Activities in an Experimental Reading Room"; "Using Neuro-Linguistic Programming in the Schools"; and "The Other End of Bruner's Spiral: a Proposed Educative Procedure for Easy Integration of Knowledge." Book reviews are also included. (MSE)

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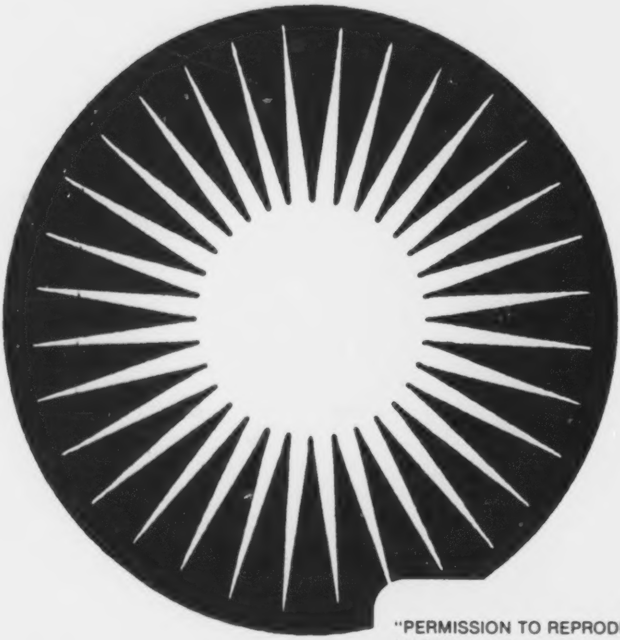

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Volume 14, Number 1 Spring 1989

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Retraining Cognitive Abilities: Memory and Thinking Improvement Combining Suggestopedia with Cognitive Behavior Modification (CBM) for Ages 10-55

Jan Erland

ABSTRACT. This quasi-experimental study explored how a specific application of information processing theory was applied to practice using CBM methods and Suggestopedia, applying the sequential-simultaneous dichotomy. The study consisted of Experiment I and Experiment II. Experiment I had l40 E Ss, age ten through adult, from which a group of 40 E Ss were selected for the study according to age and entry proficiency. A group of 40 controls, age ten through adult, was selected outside of the l40 E Ss, to match the 40 E Ss in age and ability. A multifactor analysis of covariance showed significant gains for the l40 E Ss and the 40 E Ss over the controls after the treatment application, based on seven subtests from two different standardized test measures. Included are implications for educators, discussion of the results, and future recommendations. Experiment II, a 1 - 3 year longitudinal study will be reviewed in the next issue of SALT.

* * *   * * *   * * *

Today's schools, along with their curriculum are criticized because the nation's standardized test scores in reading and mathematics have been falling since the 1950's. Many students avoid science and other demanding fields. This dilemma may not be totally a question of teacher incompetency or disinterest, lack of school structure, or the incompleted teaching of world knowledge.

It may not be a lack of student motivation, poor home support and values. While these are important detrimental facets, additionally it could be a problem of poor information processing ability, or deficiencies in underlying cognitive thinking abilities.

Information processing problems exist in many learners, making classroom instruction a difficult task. Teachers and business supervisors are searching for answers to learning difficulties and inability to perform basic job skill functions. Individuals need to learn and process information, and to remember it, so that the classroom and work environment can become more productive and harmonious.

Programs aimed at teaching the basics of reading, writing, and arithmetic depend upon adequate information processing ability. Long-range benefits for individuals who improve their information processing capabilities include more entry opportunities for gainful employment, increased career options, and better performance on the job. This leads to opportunities for career advancement.

Carefully designed Cognitive Behavior Modification (CBM) (Meichenbaum, 1977) techniques and strategies that included verbalization, mnemonic organization, and study skills still fell short of desired improvement of academics, because some important foundation components were missing. Theoreticians, although looking at all the ramifications of the problem, were not focusing on an important bottom line issue. This was poor information processing capability, with deficient cognitive functions.

Individuals, whether high or low achieving children, teenagers, or adults, are often born with certain underlying information processing deficits which do not disappear with maturation or the passing of time. These deficits may include inadequate visual and auditory sequential memory capability that ultimately interferes with the integration of information. Individuals possessing several of these problems may develop some compensatory and coping skills. They often carry within them a high degree of stress that can result in underachievement, or even chronic situational depression. These deficiencies when existing within multiple cognitive functions, may be called learning disabilities, Dyslexia, or mentally handicapped. The problem may be misdiagnosed and blamed on a lack of motivation or poor attitude. Individuals may be told to try harder, or to seek help with counselors or mental health professionals. Wrong prognoses are often made. The thwarted individuals may not achieve to their maximum potential. They may not be able to enter the career fields of their choice, or be able to compete and advance in their chosen fields.

If mental abilities can be positively influenced, then we need to know what experiences will help individuals improve cognitively. This requires monitoring through standardized testing of the various cognitive abilities. According to Pellegrino (l985), many intellectual skills are malleable. Therefore, by ascertaining a person's strong and weak areas, carefully designed individualized instruction, as set forth in this study, can be applied to effect improvement.

Currently, an emphasis is being made by educators to teach to the proficient dominant learning style, whether it be visual, auditory or kinesthetic. Additionally, methodology is being designed to help learners function with strictly a global simultaneous approach. While this line of thinking holds merit, another consideration needs to be addressed. Why not correct or retrain the deficient learning style, or inability to function sequentially and analytically?

This study was undertaken to develop and document a different approach to improving mental functions and deficient learning styles. Learning capabilities were to be enhanced through memory acquisition and retention. The study was designed to explore if low achieving individuals and also high achieving individuals, could improve their cognitive functions, within a wide age range from 10 to 55.

This experiment was comprised of a group of 40 experimental subjects selected from a pool of 140 experimental subjects who received the three week treatment, and 40 controls who did not receive treatment, to determine whether there was any interaction effects of the treatment with age and entry ability levels within the experimental group. Hypotheses were that subjects from a broad age, ranging from ages 10-55, of both fast and slow paces, would improve visual speed of perception, and auditory and visual sequential memory, leading to improved auditory and visual integration, and comprehension.

Techniques of elaborative short-term memory rehearsal of underlying abilities were used to realign and correct specific information processing deficiencies. Such procedures, as applied in this study, using strategies of decoding, sequencing, analysis, and visualization, are based on Cognitive Behavior Modification (CBM) principles (Meichenbaum, 1977), and the simultaneous vs sequential dichotomy (Kaufman & Kaufman, 1983), within Guilford's (1967) Structure of the Intellect model. When combined with Suggestopedia (Lozanov, 1978), the intent was to explore the possibility of rapidly improving underlying thinking and memory skills, thereby resulting in better conceptualization, and improvement in academic aptitude or daily job proficiency.

Novel stimuli were used in the study. This included ventriloquist puppets and audio visual media, as adjuncts to Cognitive Behavior Modification and Suggestopedic techniques, in order to improve memory acquisition and retention.

Method

Subjects

To serve as the experimental treatment group, a group of subjects consisting of forty individuals, both male and female, ages 10 to 55, and primarily from a middle income environment, was randomly selected from a pool of 140 individuals who had received the three week treatment. Another group of forty individuals, ages 10 to 55, selected outside of the group of 140 individuals was selected as the control group and matched the 40 E Ss in age and entry proficiency. All of the experimental and control subjects voluntarily participated in the study. The control group did not receive treatment between the two tests. Both groups represented a typical Bell Curve distribution of ability levels as determined by the initial screening assessment test scores. The individuals included business executives, general employees, housewives, and college, high school, junior high, and grade school students down to age 10. There were some learning disabled.

Class Grouping Procedures

Two to five individuals, according to age and entry ability levels, were placed in separate class groupings in the experimental treatment group. They were initially screened and tested using seven subtests of the Woodcock Johnson Psycho-Educational Battery (WJ) (Woodcock, R. & Johnson, M., 1977) and The Detroit Tests of Learning Aptitude (DTLA-1) (Baker, H. & Leland, B. 1935; 1967), measuring spatial relationships and visual perceptual speed, auditory sequential memory, visual sequential memory and auditory-visual integration (See Tables 3 & 4). For the treatment application, high average to superior students were grouped together, average students were grouped with average, low average with low average, and moderate to severe deficit students were similarly grouped with one another. Every effort was made to make the treatment groupings compatible, by age and ability, so that the instructions and lessons could be geared and paced according to the overall compatibility of the individuals in the groupings.

The 40 Experimentals matched the 40 Controls in age and entry ability levels. Each group of 40 had 25 higher ability (fast pace) individuals, and 15 individuals of lower ability (slow pace). Each of these two groups were broken into ages 10 to 15 years, and 16 to adult. The 25 fast pace individuals had fifteen subjects ages 15 to adult, and ten subjects ages 10 to 15. The 15 slow pace individuals consisted of eight subjects ages 16 to adult, and seven subjects ages 10 to 15.

The ability level of each individual, for grouping placement requirements, was determined by the standardized tables and ability references of the Woodcock-Johnson Psycho-Educational Battery, which is ideally suited for matching and pairing students for experimental designs, as it identifies cognitive characteristics. It also has definite descriptions of each functioning level, which are: very superior, superior, high average, average, low average, moderate deficit, and severe deficit. Those subjects whose functioning level scores were average to very superior, including the perceptual speed cluster, were placed in the high ability (fast pace) groupings. Similarly, the subjects who had functioning level scores, including perceptual speed, of below average to severe deficit, were placed in the low ability groupings.

Suggestopedia Stimuli Applied

Part of the stimuli applied in the study with the treatment group, was the use of videoed life-sized ventriloquist puppets as a teaching tool within a suggestopedic design framework (Lozanov, 1978). Puppets as class models were used for the following reasons:

1. The variety of vocal intonation, including pitch variations, tonal changes, and sound dynamics, of the puppets was designed to enhance visual and auditory memory (Lozanov, 1978; Render & Anderson, 1986). The puppets became an important tool in depicting the varying analytical sequence components, and also the simultaneous components (Erland, 1980).

2. The animated and vocal characters were nonhuman figures that were implemented to help reduce stress surrounding the intensive drilling procedures.

3. The unusual cartoon faces formed a whole gestalt framework on the video screen and became a simultaneous memory aspect, and also in improving visual closure, which is processing as a whole gestalt formation (Kirk & Chalfant, 1984). Similarly, the individual faces depicted separate chunking formations, or sequencing instruction.

4. The puppets created a place of focus, attention, and concentration. They also became models (Bandura, 1971) in the drilling rehearsal paradigm (Erland, 1980).

5. The cartoon puppet figures were part of the Suggestopedic design to create a warm, close, stimulating environment, that can become conducive to learning and memory (Erland, 1980).

Music, Rhythm, and Pacing

Other components applied in many of the instructional drills in the treatment groups were music, rhythm, timing, and pacing. A variety of music was used as simultaneous audio background mental pacing. The music timing ranged from largo and adagio, to andante, using a variety of classical, baroque, modern and jazz (Ostrander & Schroeder, 1979). Tonal patterns, using musical chimes for counting multiple tone sequences, were also employed for contrasts in teaching auditory sequential memory. The chime tone was simultaneous in nature, and the sequential counting was successive in nature.

In many of the lessons a metronome was used to maintain mental pacing and an inner sense of rhythm and timing. The metronome was set at largo to adagio for exercises that needed a slower and more deliberate pace. It was set at allegro for exercises requiring a faster memorization rate.

Light and Color

Another component was the use of light and color in the teaching procedure. Coordination of light and color effects were an important part of the lessons. They were designed to stimulate simultaneous processing, and to inject a warm emotional feeling, to induce a more rapid learning process (Frostig & Maslow, 1979). This included colored transparencies on an overhead projector, and pink lighting in the treatment classroom.

Video Recordings

Video recordings of the puppet characters were used as segments of the class training exercises. Each puppet was filmed with only the individual face showing on the screen at one time. Different wooden people-puppet faces, acting in sequence, were used to model various exercise segments. Therefore, with the puppets reciting individually in sequence, the complete learning segment is in concrete representational form, both vocally and visually. This visual and auditory format was designed to improve visual and auditory sequencing (successive processing) through chunking, and visual and auditory closure (simultaneous processing) through synthesis representation of the individual speaking face, thereby creating integration of the two.

Abilities and Academic Content

Abilities Content

Six cognitive thinking ability functions were incorporated into the exercise drills. Each exercise drill consisted of six to nine steps. Each step shifted back and forth from spatial to linear, synthesis to analysis, encoding to decoding, visual to auditory closure patterns, and inductive to deductive reasoning (see Figure 1). Every exercise drill incorporated the following six cognitive thinking functions (shifting between simultaneous and successive processing) (Hatta, 1960; Kaufman & Kaufman 1983):

I. Spatial and Linear Relationships

Spatial skills, crucial in learning the concept of place value with digits, comparison of sets, rational counting, and general mathematical calculating, are coupled with linear placement (Luria, I966; McLeod & Crump, 1978). Spatial abilities are correlated with success in geometry and algebra, handwriting, and in the career fields of engineering, architecture, photo journalism, and art and design. Pellegrino (I985) concludes that training and practice of cognitive abilities that include spatial skills can often lead to substantial thinking ability improvement that is reflected in standardized tests.

Linear cognitive thinking is reflected in visual and auditory sequential memory, which is the foundation for analysis or analytical thinking, including reading, mathematics, spelling, and written composition (Das, Kirby & Jarman, 1979).

2. Synthesis and Analysis

Detailed exercise drilling of sequential information leads to rapid analytical ability. The synergistic shift from synthesis (parts to whole processing) to analysis (whole to parts processing) creates different interpretations of the same presented material (Kaufman & Kaufman, 1983). Identifying similarities and differences are an additional component (Piaget, 1950).

3. Encoding and Decoding

The ability to decode words phonetically is crucial to reading comprehension. The ultimate purpose of reading is to become aware of the thought units on a page without being aware of the individual letters and words (Katz & Wicklund, 1972; Laberge & Samuels, 1976; McClelland, 1976; Rumelhart, 1978b; Kirk & Chalfant, 1984). Written symbols must be decoded before they can be encoded into meaning. The ability to decode and encode is crucial to the learning of a foreign language (Liberman, Mattingly & Turvey, 1972), and according to Aristotle, for mathematical reasoning (Sternberg, 1985). Encoding is also a component of process execution, which is the underlying foundation for mathematics, and for understanding analogies which are an important component of many college examinations.

4. Visual and Auditory Closure

Exercises in closure are important underlying abilities for reading and oral communication (Elkind, 1970). According to Kirk & Chalfant (1984), closure may be defined as the recognition of a whole gestalt when one or more parts of the whole are missing. Students with poor auditory closure often have difficulty with reading, along with oral communication. This is evidenced by omission of words, confused word order, and substitution of words and word meaning. Students with poor visual closure have difficulty with whole gestalt interpretation, which can be reflected in reading and written language difficulties (Kirk & Chalfant, 1984).

5. Inductive and Deductive Reasoning

Deductive reasoning is applied through exercises in logic and reasoning. Sternberg (l985) discusses a three-part reasoning plan which begins with understanding the problem, then devising a plan which consists of serial ordering, next executing the plan without error, and finally considering alternative methods that may exist. Piaget (l950), known for his work in mental logic and deduction, stresses the ability to draw valid conclusions. Inductive reasoning has been a central part of theories of intelligence, of which Thurstone (l938) was a forerunner. According to Sternberg (l985), all inductive reasoning has the same basic property, which is selecting and interpreting an appropriate continuation of a pattern that is presented to an individual.

6. Visual Imagery and Verbalization

Visual imagery (simultaneous processing) and verbalization (successive processing) are crucial components of thinking. Paivio (1971) states that a dual-processing system, comprised of nonverbal imagery and oral symbolic processes, is the underlying foundation for memory and thinking. Each exercise drill in this study incorporated shifting from visualizing to verbalizing of the information. This is an important component of Cognitive Behavior Modification (Meichenbaum, 1977).

Academic Content

I. Sight Words and Reading

A series of unrelated sight words were drilled according to memory-span length (Miller, 1956; Magnuson, 1977). Sets of four can be gradually extended to sets of six or more (Bower, 1972). They should be presented both visually and auditorially. This drilling procedure helped automatic short-term memory recall bridge to long-term memory recall (Spear, 1978). Magnuson (1977) indicated that rehearsal of unrelated sight words improved reading comprehension of remedial 7th grade students.

There is a positive relationship between auditory memory, visual memory, and visual-auditory integration as important perceptual skills that is linked to reading achievement (Kavale, 1981). Good short-term auditory memory processing is a determinant of reading speed (Jackson & McClelland, 1975).

Howard (1983) suggests three major processing differences between good and poor readers. They are: (1) the use of phonemic coding in working memory, (2) the capacity of working memory, and (3) the speed of encoding letters. Each of the drills in the study incorporated these functions.

Unrelated Letter Sequences were drilled as part of the reading speed and comprehension instruction, beginning with spans of six and progressing to spans of ten (Craik &

Lockhart, 1972; Jackson & McClelland, 1975; Fredriksen, 1977; Rumelhart, 1978; Howard, 1983).

The early stages of letter processing occur simultaneously, and the late stages of processing are successive (Hatta, 1960; Coles, 1987). This underlying feature level therefore requires rapid cognitive shifting from simultaneous to successive during reading. This inability to rapidly shift letters is a reading processing dysfunction associated with dyslexia (Thomson, 1984; Coles, 1987).

2.Vocabulary

Individual words from reading content were taught according to meaning inference, both in and out of context. Latin root-word derivatives were also drilled and learned. Reading comprehension and vocabulary skills correlate with intelligence (Kavale, 1982; Sternberg, 1985).

3. Spelling

Procedures for learning spelling words were taught according to scope and sequence (difficulty level progression). Emphasis was placed on attack, rehearsal, and long-term memory techniques. The spelling of each word was recited several times both forward and in reverse. This was designed to enhance visualization and placement value of the feature level components (Estes, 1975).

4. Math Facts

Developmental learning abilities involved in arithmetic and mathematical skills are: (l) problem solving, (2) concept formation, (3) language, (4) integration & association, (5) memory (auditory and visual), (6) discrimination (auditory and visual), and

(7) attention (auditory and visual) (Kirk & Chalfant, 1984).

Poor visio-spatial skills result in difficulty in learning the concept of place value with digits. Individuals lacking these skills have difficulty with mathematical calculating (Piaget, 1950; Luria, 1966; Coles, 1987).

5. Grammar and Composition

Written composition is an important part of the communication process. Sequential ordering and linear flow of short term memory become important to syntax and grammar organization, and are a problem with many learners, and with dyslexics (Kaufman & Kaufman, 1983; Thomson, 1984). The following sentence exercises in the study taught syntax and grammar: scrambled words to form sentences, repeating sentences word for word, and missing word completion.

6. Numerical Digits

Numerical digits were drilled starting with sequence spans of three and moving to spans of ten. Students learned concentration, attention, and mental manipulation of numerical placement by reciting the span first forward, then in reverse, and then forward again. This type of mental flexibility, including visualization of spatial placement, becomes an important skill for those engaged in accounting, typing, data and word processing, and statistical measurement. Thomson (1984) notes that dyslexics often do poorly on span tests, that require sequencing.

7. Handwriting

Motoric output emphasizing hand-eye coordination was used whenever possible using Bandura's (1971) modeling framework within his Social Learning Theory. This included spatial versus linear flow construction or simultaneous vs successive processing (Kaufman & Kaufman, 1983).

Training Procedure

The training period for the treatment groups in Experiment I consisted of 15 sessions meeting for one hour and fifteen minutes daily, Monday through Friday, for 3 weeks. Six to seven different rapidly paced drills, representing various cognitive functions, from simultaneous to successive, were taught daily (Piaget, 1950; Feuerstein, 1956; Guilford, 1967; Meeker, 1969; Das, Kirby, & Jarman, 1975; Kaufman & Kaufman, 1983). A modeling and imitation paradigm was the basis for the rehearsal and drilling procedure used in presenting the nearly one hundred different exercise segments within the total drill areas (See Figure 1 for sample drill lesson content) (Piaget, 1950; Bandura, 1971). Initially the clinician verbally modeled the instruction, then the ventriloquist people-puppets verbally modeled the same instruction in sequence. Each puppet character took a part in the drill sequence on the video screen (Sharp, 1972). Each puppet offered its own variety of vocal pitch, ranging from high to low. The tonal quality, ranged from mellow to sharp, and the dynamics ranged from loud to soft. Then a single puppet sang the entire sequence (a simultaneous application) with the treatment group overtly repeating the sequence in unison. These exercises formed a synergistic shift of the information, moving from simultaneous to sequential. The same single puppet then vocally recited the sequence one additional repetition (creating a whole gestalt) (Elkind, 1970), with the group again reciting in unison. The first peer model in the treatment group verbally modeled the same instruction. Then each of the other group members actively participated by verbally modeling the instruction. After the first three days, each member of the group stood and recited the training segment, maintaining eye contact with the other members of the group. Additional written motor performance repetition was administered whenever appropriate, offering multi-sensory integration (Bandura, 1971; Ayres, 1972).

The average time spent on each drill in the daily class framework was seven minutes. This short time frame was designed to stimulate the active attention of each student, and to create cognitive shifting from simultaneous to sequential. Each individual drill item was repeated once by the group members after the clinician modeled the item (Meichenbaum, 1977; Brown & De Loache, 1978). Coinciding with the models on the television monitor, it was repeated eight times, and then once independently by each group member, i.e., a total of ten overt repetitions per individual. Each group member was instructed to focus on the reciting member and covertly rehearse the item simultaneously. This added an additional four repetitions, or a total of fourteen repetitions per individual. Each drill consisted of roughly three to four different items, thereby providing fifty-six repetitions per individual during each drill. These fifty-six repetitions, times the seven to eight different drills, totaled nearly 400 repetitions in continuous drilling, per one hour and fifteen minutes session. Memory traces are strengthened through repetition (Spear, 1978). According to neurobiologist Lynch (1984), memory traces are created by repeated firings of the neuronal synapses in the brain. This creates chemicals that in turn ensures that the circuit will work more easily in the future.

The drills were paced according to the total ability level of the group. The scope, sequence, and difficulty level of the drills were maintained (Johnson & Myklebust, 1967; Salvia & Ysseldyke, 1981). Low ability students often required more drilling per item than did the students in the higher ability groups. The drills were presented until the responses became automatic. After the eighth day, cues and prompts were faded (Skinner, 1953; Sloan, 1980). The initial modeling of the puppets on the television monitor was decreased to two times for the average to superior groups. The slower groups decreased repetitions after the eleventh day to three times. The students were carefully advanced from their base levels of cognitive performance, and paced to higher, more complex cognitive levels (Johnson & Myklebust, 1967). Exercises trended during the treatment period from concrete to more abstract concepts (Piaget, 1950; Sloan, 1980).

All drills were taught in units or blocks of trials (Skinner, 1953; Sloan, 1980). Every sequence drill was broken down into small components (Myklebust, 1965; Salvia & Ysseldyke, 1981), which were drilled commensurate with each individual's memory span length (Miller, 1956).

Some drills were designed not only to reflect an individual's memory-span length, but also for complexity levels involving interrelationships of information schema. The drills were given in successive approximations (Johnson & Myklebust, 1967; Siegel, 1972; Sloan, 1980; Salvia & Ysseldyke, 1981). Each learner's response was carefully monitored by the clinician (Meichenbaum, 1977; Sloan, 1980; Kirk & Chalfant, 1984). The removal of cues and stimuli was carefully planned according to the spontaneity of learning by the individual students (Skinner, 1953; Meichenbaum, 1977; Sloan, 1980).

Each drill included decoding wholes to parts, and encoding parts to wholes (Piaget, 1950; Feuerstein, 1956; Bower, 1972). The intensive application in every drill of decoding and encoding, analysis and synthesis

(Estes, 1972; Sternberg, 1985), contributed to the process of overlearning. *(See Figure 1).*

The exercise drills were specifically designed to switch back and forth between simultaneous and successive processing. This was in order to encompass the entire thinking process and to include all thinking abilities (Kaufman & Kaufman, 1983). Therefore, students favoring one or the other style of processing soon become engaged in, and comfortable with, both cognitive styles. Each drill exercise included several sequential component properties and also several simultaneous component properties. Therefore, a synergistic mental cognitive shift was activated within the individual (Hatta, 1960).

Various exercises in Suggestopedic imagery and visualization (Paivio, 1971; Bower, 1972) were introduced and implemented along with reauditorization and verbalization (Meichenbaum, 1977; Sloan, 1980). These were combined with the sequence training rehearsal procedures (Hynd & Cohen, 1983). Self-instructional strategies, which are a part of CBM procedures, were taught (Meichenbaum, 1977). They included the shaping of verbalization from overt speech to covert speech. Each learner was also instructed in the self-monitoring of internalized thinking (Brown & De Loache, 1978), which included linear sequential analytical thought patterns (Sternberg, 1985).

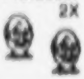
Fig. 1. Sample lesson, Day 3.

Content Title: Following Oral Directions on Paper

Materials Needed: Instruction Sheet & VTR of Lesson #18

Objective: To be able to follow a sequence of oral directions in exact sequential order.

MEMORY RETAINER
LESSON: #18

Repetition	Directions	Time	Purpose & Modality	TV Mode	Brain Hemisphere
1.	Listen to the instructor read the entire set of oral directions	10 m.	Auditory Sequential Memory, Decoding, Deductive Reasoning		LB
2.	Watch visual segments on monitor. Each face is a cluster of information. Orally speak along with the characters. (Chorally)		Visualization, Visual and Auditory Discrimination, Visual and Auditory Closure, Analysis	Parts Low to High Pitch	RB RB-LB RB-LB LB
3.	Overtly the group repeats the line chorally with Wayne, and then the abbreviated code with the Professor in counterpoint style.		Decoding and Encoding, Analysis and Synthesis	Wayne and Professor 	LB-RB RB
4.	The group overtly repeats the code twice with the Professor.		Verbalization, Auditory Sequential Memory, Encoding	Professor 2X 	LB LB RB
5.	Each student recites the code individually		Verbalization Auditory Sequential Memory, Encoding	(Wayne Soft Low Pitch Professor-Loud High Pitch)	LB LB RB
6.	Each student writes the code sequences on paper, covertly repeating.		Visual-Motor, Auditory-Visual Integration, Encoding		RB-LB LB RB
7.	Each student interprets the code by writing the interpretation on paper.		Decoding, Analysis, Conceptualization		LB LB RB-LB

Cognitive thinking strategies of encoding, word association, and clustering of parts, and their application in the drills, were carefully explained to the students. The various drills incorporated each of these memory strategies (Kirk & Chalfant, 1984). They identified and analyzed specific patterns and configurations, and interacted by discussing problem-solving solutions (Piaget, 1950; Estes, 1972; Kosslyn & Pomerantz, 1977). The various interpretations were discussed among the peers and a consensus was reached. The seemingly best strategy was then coded and rehearsed.

Results

Table 1. Comparison of Pre and Post Course Test Scores for Two Test Samples (Ages 10 - Adult) on the Woodcock-Johnson Psycho-Educational Battery*

Auditory Memory	140 E	40 E	40 C
"Post" median score %	94	93	71
"Pre" median score %	57	55	57
Improvement Gain over control	23	24	- -
Stanine Improvement	+2.07	+3.30	+.45
Visual Memory			
"Post" median score %	85	80	73
"Pre" median score %	61	58	64
Improvement Gain	24	22	09
Improvement Gain over control	15	13	- -
Stanine Improvement	+1.96	+1.70	+.70

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*140 E: 140 Experimental Subjects (Total Pool Group)
40 E: 40 Experimental Subjects (Randomly Chosen From Pool)
40 C: 40 Control Subjects

In Table 1, we see a comparison of the 140 experimentals, 40 experimentals and 40 controls in Experiment I, comparing gains made in auditory and visual memory as measured by the Woodcock-Johnson Psycho-Educational Battery. Median percentile scores on each of the four subtests of the Woodcock-Johnson Psycho-Educational Battery were higher for the treatment group, as well as the total pool group scores, when compared with controls.

Table 2 shows for Experiment I a 2 (group: experimental vs control) x 2 (ability or pace: fast vs slow) x 2 (age: 10-I5 vs 16-adult) multivariate analysis of covariance (MANCOVA), conducted on seven scales (dependent variables). The 40 Es matched the 40 Cs in age and entry ability levels. Each group of 40 had 25 higher ability (fast pace) individuals, and 15 lower ability (slow pace). Each of these two groups were broken into ages 10 to 15 years, and 16 to adult. The 25 fast pace had fifteen individuals ages 15 to adult, and ten individuals ages 10 to 15. The 15 slow pace individuals were broken into eight individuals ages 16 to adult, and seven individuals ages 10 to 15.

Further analysis was conducted to discover whether differences on specific subtests were statistically significant. Independent variables were age (under 15/over 15), pace (fast/slow), and group (experimental/control). The scores on the pretests were the covariates. Dependent measures were the posttest scores. There was a significant overall main effect for group 1, (experimental vs control) F=26.55, p<.01. There were no significant main effects for age or pace. None of the interaction effects was significant.

Table 2. Multivariate Analysis of Covariance Using 7 Dependent Variables

	Wilks Lambda	F Ratio
Group 1 E v C	0.24	26.55*
Pace 2	0.87	1.29
Age 3	0.80	2.16
Group x Pace	0.91	0.81
Group x Age	0.92	0.70
Pace x Age	0.91	0.86
Group x Pace x Age	0.86	1.42

* df = 7,59, $p < .01$

The seven dependent variables from the Woodcock-Johnson Psycho-Educational Battery (WJ) and the Detroit Tests of Learning Aptitude (DTLA-1) were:

WJ No. 02 Spatial Relations
WJ No. 07 Number Matching
WJ No. 03 Memory For Sentences
WJ No. 10 Number Reversals
DTLA-1 No. 06 Memory For Unrelated Words
DTLA-I No. 16 Memory For Letters
DTLA-I No. 18 Following Oral Directions

* * *   * * *   * * *

Table 3 for Experiment I shows the univariate analyses of covariance for each subtest, and summarizes the treatment effects on the 7 dependent variables. The analyses revealed significant main effects for all subtests except subtest No. 07 (Visual Number Matching).

Table 3. Summaries of the Univariate Analyses of Covariance of the Treatment Effects on the 7 Dependent Variables

Subtest #	Treatment Mean Square	Mean Square Error	F
WJ			
Post 02 Spatial Relations	158.20	16.10	9.31*
Post 07 Number Matching	4.96	3.54	1.40
Post 03 Memory for Sentences	27.38	2.10	13.07*
Post 10 Number Reversals	242.81	5.72	42.48*
DTLA-1			
Post 06 Memory for Words	753.20	10.71	70.31*
Post 16 Memory for Letters	138.19	4.24	32.56*
Post 18 Auditory-Visual Integration. Oral Direction Sequences	2,813.81	28.19	99.82*

* All tests significant at $p < .01$ except # 07.

* * *   * * *   * * *

Table 4 for Experiment I is a technical summary of a Table of Means. It shows the unadjusted and adjusted posttest means for the experimental and control groups on each of the seven dependent variables. Standard deviations and maximum possible scores are also shown. When adjusted, the pretest to posttest means had more points and the groups gained relatively more. In every case, the adjusted mean was higher for the experimental group than for the control group. With the exception of subtest No. 07, the differences between experimental and control group adjusted post test means was significant at the <.05 level.

Table 4. Means and standard deviations of scores of the Woodcock-Johnson Psycho-Educational Battery (WJ) and the Detroit Tests of Learning Aptitude (DTLA-1)*

		Max.	Unadjusted		Adjusted
		Points	Means	S.D.	Means
WJ #2	E Pre	74	47.88	7.73	
Spatial	E Post		52.85	7.15	52.57
Designs	C Pre 1		48.03	6.49	
Timed 3 Min.	C Pre 2		50.50	6.03	50.73*
WJ #7	E Pre	30	21.82	3.05	
No.Match	E Post		23.65	3.01	23.59
Visual	C Pre 1		21.72	2.48	
Timed 2 Min.	C Pre 2		22.80	2.50	22.98
WJ #3	E Pre	22	14.75	1.92	
Sentence	E Post		16.72	2.00	16.62
Repetition	C Pre 1		15.53	1.94	
Auditory	C Pre 2		15.82	2.19	15.50*
WD #10	E Pre	21	8.05	3.12	
Oral No.	E Post		13.65	3.11	14.01
Reversals	C Pre 1		9.90	3.97	
Auditory	C Pre 2		10.60	4.04	10.21*

DTLA-1	E Pre	70	50.22	6.65	
#6 Auditory	E Post		58.42	5.03	58.70
Word Sequence	C Pre 1		50.45	7.32	
	C Pre 2		52.57	6.59	52.04*
DTLA-I	E Pre	20	12.78	2.86	
#16 Visual	E Post		16.75	2.91	16.97
Letter	C Pre 1		12.55	2.85	
Sequences	C Pre 2		14.00	3.21	14.05*
DTLA-1	E Pre	40	14.18	6.06	
#18 Auditory.	E Post		29.85	7.72	29.60
Visual Integrat.	C Pre 1		14.95	5.17	
Oral Direction	C Pre 2		17.62	6.21	17.00*
Sequences					

*Difference between experimental and control group adjusted posttest means is significant at the .05 level or less, for 40 Experimental subjects (E) and 40 Control subjects (C).

* * *   * * *   * * *

Discussion

A wealth of literature exists regarding the principles of Cognitive Behavior Modification (CBM). Meichenbaum (I977), usually recognized as one of the first in the development of CBM, combined the theories of Bandura (*Social Learning Theory*, 197I), Piaget (*The Psychology of Intelligence*, I950), and Skinner (Theory of Behavior Modification, I953). Many of the familiar components of the above three theories were implemented in this study. This included peer modeling (Piaget, I950; Bandura, I97I); the shaping of behavior through graphing, positive reinforcement, arranging for a high percentage of correct responses and task analysis (Skinner, 1953; Siegel, 1972); and teaching from simple to complex concepts through gradient steps (Piaget, 1950; Skinner, 1953; Meichenbaum, 1977; Flavell, 1979; Sloan, 1980).

CBM, combined with Kaufman & Kaufman's Sequential-Simultaneous Dichotomy, along with Suggestopedic teaching principles (Lozanov, 1978) is a diverse yet compatible system for rapidly improving cognitive abilities and memory retention.

Successive processing refers to the processing of information in linear sequential order according to temporal context and cues. In this training system, rehearsal strategies are given to help implement the linear order. Simultaneous processing refers to the processing of information as one entire whole gestalt with spatial overtones. Auditory reasoning is successive, and visually presented reasoning is simultaneous (Das, Kirby & Jarman, 1979; Kaufman & Kaufman, 1983).

Authorities generally agree that the ability to place various components of information into sequential order is the underlying foundation for reading, mathematical computation, spelling, written composition, and computer programming (Das, Kirby, & Jarman, 1979; Kaufman & Kaufman, 1983). There are basic sequential mental steps applied in inductive reasoning ability (Piaget, 1950; Sternberg, 1985).

Suggestopedic procedures include an initial relaxation stage progressing into a more rapid accelerated learning phase (Lozanov, 1978). This includes vocal intonation for rapid memorization of passages, musical rhythm, timing, and color. Suggestopedic techniques when combined with sequential short term memory drilling, can be effective in enhancing memory abilities (Render, G. & Anderson, L., 1986).

Many experts in the fields of cognitive psychology and education have moved in the direction of the training of thinking ability and intelligence. Meichenbaum (1977) states that how to think is as important as what to think. Hirsch (1988) discusses the lack of world knowledge, or cultural literacy. Without good production capability, evaluative critical thinking ability suffers (Ruggiero, 1988).

The general population has more subtle brain damage, or dysfunction that result in information processing problems, than once was thought (Silver, et al., 1976).

Standardized subtests on the Woodcock-Johnson Psycho-Educational Battery (WJ) (Woodcock & Johnson, 1977; Woodcock, 1978) and the Detroit Tests of Learning Aptitude (DTLA-1) (Baker & Leland, 1935, 1967; Hammill, 1985) can measure specific areas of cognitive functioning in the individual in a progressive fashion. Before these tests were developed, cognitive processes were often difficult to study in isolation (Flavell, 1979).

Some authorities (Hammill & Larsen, 1974; Torgeson, 1979) state that deficiencies in basic processing do not affect performance. Their criticisms were directed to the development of remedial programs correcting the deficiencies of psycholinguistic skills as assessed on the Illinois Test of Psycholinguistic Abilities (ITPA) (Kirk, McCarthy, & Kirk, 1968). Minkskoff (1975) countered that Hammill and Larsen's study was not done with learning disabled or reading disabled students as the ITPA originally intended, and that there were many procedural errors, including: not accounting for group versus individual treatment, not having carefully designed and controlled strategies and techniques, no length of time involvement, and no accounting for teacher competency and assessment errors.

Other remedial programs and systems emerged, and many are still continuing, that trained the underlying cognitive abilities (Piaget, 1950; Feuerstein, 1956; Meeker, 1969; and Frostig & Maslow, 1979). These definitive component ability frameworks began with Thurstone's (I938) Seven Primary Mental Abilities, and were followed by Guilford's (1967) Cognitive Model of I50 abilities.

Gardner (1985) discussed how many authorities abandoned parallel and information processing theory "bottom up" in the late 1970's. This was because the lack of follow-up statistics, and evidence that retraining processes had generalization effects. Hirsch (1988) agreed with Gardner that a "top down" consciousness of schemata functions is necessary for comprehension and memory.

Individual learners have strengths and weaknesses within their underlying cognitive processing abilities (Kirk, McCarthy & Kirk, I968). These underlying abilities can be trained so that academic success is facilitated (Piaget, I950; Feuerstein, I956; Meeker, I969; Frostig & Maslow, 1979). Requirements for implementing access to these abilities are: good short-term recall, serial recall, cross-modal coding ability, memory scanning, encoding, and depth of processing ability (Farnham-Diggory & Gregg, I975). Primary mental abilities are not statistically independent but are intercorrelated with each other. Therefore, individuals who tend to be high in one ability are high in other intercorrelated abilities, and those individuals who are low in one ability, tend to be low in other abilities (Sternberg, 1985).

It is not intended to show an application of the ITPA per se, but that the deficiencies in the underlying abilities of visual and auditory sequential memory can be corrected and improved. This is accomplished through unique encoding control strategies with elaborative rehearsal, leading to improvement of long-term memory retention, and ultimately, conceptualization of information.

This study demonstrated that cognitive behavioral and Suggestopedic techniques used to aid memory drilling can be effective in enhancing memory abilities. That scores were increased on general tests of ability, rather than on mere memory tasks, suggests that underlying cognitive components were enhanced through memory rehearsal. All subjects in the treatment group, regardless of age or ability levels, improved their performance significantly in these underlying abilities. This includes: visual and auditory perception, discrimination, closure, sequential memory, and integration.

Teaching specific strategies and techniques of self-instruction, with an intensive and consecutive daily format, can affect both high and low ability learners positively. This is regardless of age, and offers a higher level of mental organization. Therefore, retention and higher order conceptualization are improved.

The application of novel stimuli appeared to increase the learner's attention and concentration, and aided in absorption ability. It was designed to assist in contributing to a warm, emotionally supportive and less stressful environment, which can lead to improvement of overall short-and long-term memory.

This research has both theoretical and practical implications. From a theoretical point of view, it demonstrated that CBM techniques can be expanded upon. Underlying processing abilities can be addressed by identifying weaknesses and systematically correcting them. One practical implication for education, because of the maintenance of training results as indicated in one to three year post testing, is that consideration should be given to implementing these drilling methods and cognitive strategies, both in schools and in the work place.

The ability to understand and assimilate CBM metacognition strategies depends upon the individual's information processing ability. Therefore, individuals with either deficient visual or auditory processing ability, or with deficiencies in both abilities, cannot accurately assimilate teaching strategies, or instructional procedures on the job. Efficient information processing, which includes both visual and auditory sequential memory ability and encoding capabilities, is essential if the student is to be able to follow lectures and classroom instruction, read and recall technical textbook information, and have the mental organization necessary for successful test-taking. These processing abilities are also important to the individual on the job, in the areas of rapid reading comprehension, satisfactory oral and written communication capabilities, following procedures and job skill functions, and good reasoning and problem-solving capabilities. To achieve optimal results in an academic or work environment, processing abilities need to be drilled simultaneously with instruction of learning strategies. This ultimately enhances critical thinking capability.

Conclusion

Present and new methods using Cognitive Behavior Modification and Suggestopedic applications should be researched and studied as they may apply to the improvement of learning ability and intelligence.

Different approaches and theory combinations are often ignored because they do not fall into the parameters of usual solutions. Luchins (1942) outlined the phenomenon of functional fixedness as the way customary uses to which a material are used can inhibit an individual from perceiving how to use that same material implemented in a novel way in order to solve a problem (Gardner, 1985).

Researchers, school and business administrators, and classroom teachers will have to be open-minded and adjust to new teaching concepts and methods, and be willing to re-evaluate their priorities, in order to produce effective and efficient learning programs. Cognitive Behavior Modification and Suggestopedic procedures will remain in the theoretical domain, unless procedures like those used in this study are adopted by school districts and private clinics.

Parents need to take more responsibility in supervising their children's academic progress, as well to encourage their schools to adopt new teaching methods. Improved learning and intelligence is an interrelated responsibility of students, parents, teachers, school and business administrators, and researchers.

The next SALT issue will include the second part of this report, that contains longitudinal one to three year posttest follow-up data of this method.

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Recyclages des capacités cognitives: Rapport sur l'amélioration de la façon de penser et de la mémoire, combinant la suggestopédie et la Modification du Comportement Cognitif (CBM), pour les gens de 10 à 55 ans.

Cette étude explore comment une application spécifique de la théorie du traitement d'informations est mise en pratique en utilisant les méthodes de la CBM et de la suggestopédie, appliquant la dichotomie séquentielle-simultanée. L'étude consiste en deux expériences, I et II. L'expérience 1 comprend 140 E Ss, de 10 ans à l'àge adulte, parmi lesquels on sélectionna pour l'étude un groupe de 40 personnes, selon l'àge et compétence aux 40 premiers choisis. Une analyse de covariance à plusiers facteurs montre des améliorations signifiantes pour les 140 E Ss et les 40 E Ss sous contrôle, aprés application du traitement, basé sur sept sous-tests, à partir de deux mesures de tests standards différentes. Ce que cela implique pour les éducateurs, la discussion des résultats, et les recommandations futures sont incluses dans le rapport. L'expériment II, étude longitudinale sur un à trois ans, sera considérée dans la prochaine parution de SALT.

Umschulung cognitiver Fähigkeiten: ein Bericht über Denk- und Gedächtnisverbesserung durch die Kombination von Suggestopädie mit Veränderungen des cognitiven Verhaltens im Alter von 10 bis 55.

Diese Studie untersucht wie eine spezifische Anwendung der Informationsverarbeitungstheorie in der Praxis angewendet wird mittels Gebrauch der Methode zur Veränderung des cognitiven Verhaltens und Suggestopädie unter Anwendung der Folge-Gleichzeitigkeitsdichotomie. Die Studie besteht aus Experiment I und Experiment II. Experiment I hat 140 Experimentalstudenten im Alter von 10 bis erwachsen, von denen eine Gruppe von 40 Experimentalstudenten nach alter und Eingangstüchtigkeit für die Studie ausgewählt wurden. Eine Gruppe von 40 Kontrollpersonen im Alter von 10 bis erwachsen wurde ausserhalb der 140 Experimentalstudenten ausgewählt um den 40 Experimentalstudenten in Alter und Fähigkeit zu gleichen. Eine Multifaktoranalyse der Kovarianz zeigt signifikante Vorteile für die 140 Experimentalstudenten und die 40 Experimentalstudenten über die Kontrollgruppe nach Anwendung der Behandlung die aus sieben

Unterprüfungen aus zwei verschiedenen Standartisierten Tests gemessen wurde. Folgerungen für Ausbilder, eine Diskussion der Resultate und Empfehlungen für die Zukunft sind eingeschlossen. Experiment II, eine longitudinale Studie, über 1 bis 3 Jahre wird in der nächsten Ausgabe von SALT rezensiert werden.

Renovando las habilidades cognoscitivas: Un reporte sobre el mejoramiento del razonamiento y la memoria, combinando Suggestopedia con Modificación de la Conducta Cognoscitiva (CBM) para edades de 10 a 55 años.

En este estudio se observa cómo se pone en práctica una aplicación especifica de la teoria de procesamiento de información, usando métodos CBM y Suggestopedia, y aplicando dicotomia secuencial-simultánea. El estudio comprende un Experimento I y un Experimento II. En el Experimento I participan 140 sujetos, con edades de 10 años a adulto, de los cuales se seleccionó un grupo de 40 sujetos de acuerdo a edades y habilidades. Independientemente del grupo de 140 sujetos, se seleccionó un grupo de 40 Sujetos como control, con edades de 10 años a adulto, para equipararse con los 40 sujetos en edades y habilidades. El análisis multifactorial de covarianza mostró mejoria significativa en los 140 Sujetos después de la aplicación del tratamiento, basándose en siete pruebas secundarias (subtests) de nos medidas normalizadas de prueba diferentes. Se incluyen repercuciones para los educadores, discusión de los resultados, y recomendaciones para el futuro. El experimento II, un estudio longitudinal de 1-3 años será analizado en la próxima publicación de SALT.

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Students Discover the Joy of Learning Through Suggestopedia

Joan Nelson

Abstract. The purpose of this teacher case study was assess the effectiveness of accelerative learning techniques, in a fourth grade spelling class which initially contained a high level of anxiety, a fairly low level of self-esteem, and a general discouragement with learning. The results of the work were remarkable. Statistically significant score gains were evidenced both in spelling and broader testing. In addition, the teacher noted that self-esteem soared, anxiety disappeared, learning became fun, and students' grades improved significantly.

* * * * * * * * *

Introduction. The potential of accelerative learning and teaching techniques to enhance education in a difficult classroom situation was effectively illustrated with a fourth grade spelling class during the 1987-88 school year. The teacher involved in this study became interested in using Suggestive Accelerative Learning Techniques when she encountered her fourth grade class for the year 1987-88, in a school with an enrollment of 250 students, grades K-5. The area is agricultural, and a high percentage of the people in the area make their living through agriculturally related employment. The area tends toward the lower end of the socio-economic scale in the school district. The class contained 25 students, 15 boys and 10 girls. Two male students had been tested earlier in the year and were reported to be Learning Disabled in all academic areas with the exception of math. Math scores were low average for both boys. The teacher had been teaching for 8 years before she acquired this particular class, and had researched for ways to help those students the system "*leaves behind*."

At the beginning of the year the teacher described the class as follows: "The anxiety level of the students was high. There were 4 students, 2 boys and 2 girls, in the class who would cry when assignments were given. Not all of them would cry with each assignment given, but it was very difficult to get through the day without at least one of them feeling uncomfortable enough to cry. Assignments from about one third of the students were regularly not turned in, incorrectly done, sloppily done, or partially complete. Many of the students didn't care about learning if it took too much effort. With parent pressures at home for good grades, and teacher pressures at school for completed, neat, and on-time work, the tension in the classroom began to grow. There were, of course, students who did all that was expected--and sometimes more."

After beginning to use Suggestive Accelerative Learning Techniques with this class at the beginning of the second grading period, the teacher noted a number of differences. "The tension level in the classroom stopped climbing. Many of the students were delighted to discover that they could learn in such a fun and easy way. Grades started to show notable improvements. The students who cried so often at the first of the year rarely did so anymore." As the second and third grading periods progressed, the teacher reported a definite joy of learning and discovery among the students.

During the last grading period, the teacher indicated an unmistakable change in the students. "They were simply delighted to come to school and learn. Three mothers told me in one week's time that their children would rather come to school sick than to stay at home because they didn't want to miss out on anything that was done in class that day. On occasion, when I reverted to 'old ways' of teaching to check the student reaction, the students asked me to use the 'fun, new way of learning'." On February 5, 1988, the teacher sent a survey form home to give the parents of the students an opportunity to express their concerns, interest or support of the methods that were being used with their children in the classroom.

PARENT SURVEY QUESTIONS

Has your fourth grader mentioned our taking time to relax in class?

[ ] yes [ ] no

If your fourth grader has mentioned relaxation in class, have the comments been

[ ] positive [ ] neutral [ ] negative

During the past term, do you feel that your fourth grader's attitude toward school has

[ ] improved [ ] remained the same

[ ] become less positive

How does your fourth grader feel about the work we are currently doing?

[ ] getting easier [ ] getting harder

[ ] about the same

During the past term, do you feel that your fourth grader enjoys school

[ ] more [ ] less [ ] about the same

Has your fourth grader's behavior suggested a more positive "winning" attitude than you had previously observed?

[ ] yes [ ] no

Comments:

* * * * * * * * *

Of the 25 surveys sent out, 17 were returned. The returned survey forms were positive and supportive. The parents that responded to the survey reported improved attitudes, or made positive comments about the new activities at school. A sample of comments written at the bottom of the survey forms follow:

"We have had nothing but positive and excited comments about school and the projects they are doing for the last several months. It's greatly appreciated."

"She has always loved school and done well, so it is hard to tell what effect the relaxing has had on her. She does talk about it quite often."

"I'm really glad you (sic) trying to create a relaxed, enjoyable atmosphere for my son to learn in. No one can do their best under pressure. ________ seems to enjoy school. Thank you for all you do."

"We would like to give our fourth grade teacher a big A+ for the extra miles she puts in helping her students succeed and get the most out of school. Thank you."

There were no criticisms or objections to the accelerative methods being used in the classroom in the "comments" section of the survey. At home, two of the children had not mentioned relaxing in school, and one parent noticed no difference in the child's attitude. The rest of the children showed marks in areas of "yes", "positive", "improved", "remained the same", "more", and "getting easier". Unfortunately documentation through parent surveys remains incomplete, since a few forms were lost at the end of the year.

Method

Suggestive Accelerative Learning Techniques were implemented in the following ways:

1. Physical stretching activity: (3 minutes) Many kinds of stretching activities were used: reaching for objects on the ceiling, picking fruit from trees, high knee lifts, touching toes without bending knees, etc.

2. Physical relaxation to baroque music--or Mind calming activity through mental imaging to baroque music: (5-7 minutes).

Physical relaxation was accomplished by relaxing each body part individually. The teacher had the students begin with the toes and work up through the foot, lower leg, upper leg, abdomen, back, shoulders, arms, hands, neck, mouth, ears, and eyes. The teacher had the students tense the muscles in each body area, in the order above, and then after a count of four relax the tension and feel the relaxation.

Physical relaxation was also accomplished by comparing each body part, in the order given in the preceding paragraph, to different objects. For example, the toes might be compared to cotton balls, the lower legs to dangling tree branches, the arms to helium-filled balloons, etc. One of the teacher's favorite visualizations was swimming. The teacher would have the children imagine that they were floating in a big, warm swimming pool. She would then have them remember how relaxed and weightless each part of their body felt as the warm water supported their body.

Some of the mind-calming and mental imagery relaxation exercises that the teacher used can be found in *Superlearning* by Sheila Ostrander and Lynn Schroeder (1979), in *Suggestive Accelerative Learning Techniques* by D.H. Schuster and C.E. Gritton (1986), and in *Accelerating Learning: The Use of Suggestion in the Classroom* by Allyn Prichard and Jean Taylor (1980).

3. Lesson objective given to students: (less than 15 seconds). The teacher explained to the students what was to be accomplished in spelling on that day.

4. Active dramatic presentation of materials: (15 minutes). The teacher used several methods of presenting the words on the spelling list to the children. Sometimes the teacher drew pictures on the chalkboard to illustrate difficult word parts. For example, for the word "wreck" the teacher might draw a car around the letters "ck" and draw bumpers for the car with a "w" and an "r". The car might then be drawn wrecked against a telephone pole.

For the word "dairy", the teacher might write the word air on the chalkboard. She might elicit descriptions of the odor of a cow barn from the students. After the descriptions of odor were given, the students could be instructed to close their eyes and take a deep breath. They could be instructed to smell the clean, fresh air. Next they could be instructed to imagine themselves in a cow barn and take a deep breath. After this was done, the teacher would place a "d" in front of air and a "y" at the end of "air".

5. Individual student practice of materials: (7 minutes).

6. Group review of materials: (5 minutes). One of the favorite review activities of the children was to play catch with a large yarn ball. The teacher threw the ball to various students. When the student caught the ball, he/she would spell the word given by the teacher and throw the ball back to the teacher. This would be done many times with the spelling words that were presented that day.

7. For a period of seven weeks, the teacher used the method of 4-second, timed sequences of materials to baroque music as suggested in Superlearning (Ostrander & Schroeder, 1979). Later, after attending the SALT conference in Phoenix, Arizona, the teacher changed the method of presenting the information to be reviewed. The review was done with the children relaxed, but in an alert state. The teacher then read through the materials presented in the dramatic presentation to baroque music. Five minutes were allowed for this activity.

8. Student corrected, ungraded quiz on materials that were covered: (5-7 minutes).

9. A moment for quiet reflection to baroque music: (1-2 minutes).

This schedule was consistently followed on Monday, Tuesday, and Wednesday of each week. On Thursday the students were given a trial spelling test. On Friday, a final test was given. The results of the tests given in spelling for the 1987-88 year follow.

Results

A year earlier, in March of 1987, this group of children had been given the Comprehensive Test of Basic Skills (McGraw-Hill). The total battery average for the group was 4.058. The group spelling average on the same CTBS for these children was 3.688. This same group of children was tested again in March of 1988 with the

McGraw-Hill CTBS. The total battery average for the group was 7.6. The group spelling average was 6.188. A total gain of 3.542 years was shown between the 1987 CTBS and the 1988 CTBS. On the same test, a gain of 2.5 years was shown in spelling. See Tables 1-3 for statistical summaries and t-test analyses.

The two LD students mentioned earlier are not included in the statistical treatment that follows. Their improvement, however, is important and interesting.

LD student #1 was tested learning disabled in all academic areas except math. Math was tested as low average. This child was retained in the second grade. His gain in spelling was 1.7 years. His overall gain was 0.7. Considering the amount of time this child has spent in school, in his sixth year, if kindergarten is counted, his gains were significant. His total gain for the first 5 years spent in school was 2.5.

LD student #2 was also tested as learning disabled in all academic areas except math. Math tested as low average. His spelling score and his total battery score are impressive. His spelling score on the McGraw-Hill CTBS was 4.1. His total battery score was 3.6. This child wasn't given the CTBS test in 1987, therefore, there can be no comparisons. A note of interest on this child: He was a non-reader when he entered the fourth grade. In March, the CTBS measured him reading at a level of 3.1.

This article reviews the implementation of SALT techniques in the teaching of spelling in a fourth grade class during a normal school year. The fourth graders in this class were not a random sample. There were only two fourth grades in the school, and students were distributed equitably between the two classrooms based on the previous years' CTBS scores and the ratio of boys to girls.

Table 1. Total CTBS Battery Scores, Spring 1987 vs. Spring 1988

Number of Students	Mean Score	Standard Deviation	T Ratio
1988: 23	7.19	2.26	
1987: 23	4.13	.97	
Difference	3.06	1.48	9.92*

• • •   • • •   • • •

Table 2. Difference in CTBS Spelling Scores, 87-88

Number Students	Mean Score	Standard Deviation	T Ratio
1988: 23	6.37	2.14	
1989: 23	3.83	0.97	
Difference	2.54	1.95	6.25*

• • •   • • •   • • •

Table 3. Fourth Term vs. First Term Spelling Scores, 1987-88

Number Students	Mean Score	Standard Deviation	T Ratio
Fourth: 23	98.77	3.23	
First: 23	90.53	10.58	
Difference	8.24	9.33	4.24*

* P < .001

• • •   • • •   • • •

Since research was not the reason for adopting SALT techniques, a formal research design was not constructed at the beginning of the year, and therefore, t-scores are not based on a "random" sample.

Since 86% of thestudents (18 of 23) peaked out and received straight 100%s on every spelling test during the fourth term of the school year, a normal bell curve cannot be demonstrated.

* * * * * *

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Des étudiants découvrent la joie d'apprendre avec la suggestopédie.
Le but du travail était d'évaluer l'efficacité des techniques d'apprentissage accéléré dans une classe d'orthographe de quatriéme année qui sous-entend à l'origine beaucoup d'anxiété, assez peu d'estime de soi-même et un d'écouragement général avec le fait d'apprendre. Les résultats du travail furent remarquables. Des modifications statistiquement très significantes du score

ont été mises en évidence, aussi bien en orthographe que dans un plus vaste champ d'évaluation. De plus, le professeur a noté le fait que l'estime de soi était montée en flèche, que l'anxiété avait disparu; apprendre est devenu amusant et les notes des étudiants se sont améliorées de façon significatrice.

Studenten entdecken Freude am Lernen durch Suggestopädie.
Der Zweck dieser Arbeit war es, die Wirksamkeit beschleunigter Lehrmethoden in Rechtschreibung in einem vierten Schuljahr, welches einen hohen Grad von Besorgnis, einen recht niedrigen Grad an Selbstachtung und eine allgemeine Lernschwierigkeit aufwies, zu beurteilen. Die Ergebnisse der Arbeit waren bemerkenswert. Statistish signifikante Notenänderungen in Rechtschreibung wie auch in umfassenderen Prüfungen wurden bewiesen. Der Lehrer bemerkte zusätzlich, dass Selbstachtung anstieg, Besorgniss verschwand, Lernen Spass machte und die Schulergebnisse der Schüler sich signifikant verbesserten.

Los estudiantes descubren el gusto de aprender a través de Suggestopedia.
El propósito de este trabajo fue determinar la efectividad de las técnicas aceleradas de aprendizaje en una clase del cuarto año para aprender a deletrear, en la cual se presentaba mucha ansiedad, un nivel bajo de aprecio a si mismo, y falta de motivación para aprender. Los resultados del trabajo fueron muy notables. Se encontraron cambios estadísticamente significativos tanto en deletreo como en otras pruebas más amplias. El maestro encontró además gran mejoramiento en el aprecio a sí mismo, desaparición de la ansiedad, mayor diversión en el aprendizaje, y un gran incremento en las calificaciones.

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Elementary School Achievement Results Following In-Service Training of an Entire School Staff in Accelerative Learning and Teaching: An Interim Report

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Abstract. A follow-up report of an in-depth case study of in-service training of an entire school staff in accelerative learning and teaching.

INTRODUCTION

Implementation of Suggestive-Accelerative Learning and Teaching in an entire elementary school through staff workshops was the goal of Michael Alexander, Guggenheim Elementary School principal, and Jack Mitchell, then Superintendent of Chicago District 16. After Alexander and Mitchell reported the completion of a one-week staff Peter Kline workshop at the 1985 spring SALT Conference in Washington, D.C., SALT researcher Lyelle Palmer volunteered to monitor and report on the project.

The following report is the first written description of the progress of the project, following three years of staff training and two presentations at SALT conferences (see references). The results reported here are both sobering and promising; the results are sobering in the realization that a deeper examination must be made of what is required to produce universal implementation of any innovation by a school staff, and promising in terms of results seen in changes in attitudes, student achievement and aspirations.

INTEREST IN SALT

Suggestive-Accelerative Learning and Teaching (SALT) has been reported in the professional education media and popular media as a highly promising instructional process. The paperback book *SuperLearning*, which provides an introductory, if somewhat sensationalistic and outdated description of the SALT procedures continues to sell well and currently is in revision. Many SALT teacher training workshops are conducted in various parts of the world which produce highly interested and energized participants. The research literature on the effectiveness of the SALT procedures includes a review of progress with special needs students (Palmer, 1985, 1988), which indicates increases in speed of acquisition of new material at rates of two to four times the learning rates of normal students.

SUGGESTIVE-ACCELERATIVE LEARNING AND TEACHING

The broad topic of teaching/training consists of the distinctive domains of curriculum, instruction, management and assessment. Suggestive-Accelerative Learning and Teaching (SALT) procedures lie within the domain of instruction and may be applied to any curriculum and to any age or grade level. The components of SALT include, yet are not necessarily limited to the following items: positive affect, positive suggestion, deconditioning of barriers to assimilation/ learning, global learning, holistic units for curriculum presentation, positive ambience, positive teacher qualities (tone of voice, positive speaking, total language), whole-brain presentations, student motivation and involvement, visualization, use of sound/tone, creativity, arts, movement, dual plane communication, and a specific teaching/learning cycle. While these elements are examples of what many teachers would recognize as basic and desirable tenets of classroom practice which have been used in isolation in classrooms before, the unique aspect of SALT is the degree to which these components are integrated or "orchestrated" into daily teacher and pupil actions.

SCHOOL STAFF TRAINING

The provision of training for an entire elementary school staff has engaged the attention of educationists both within and outside the Society for Accelerative Learning and Teaching. Several other schools in the past have been, or currently are, involved with Accelerative Learning staff training at Paradise and San Diego, California and in the Boston area. Staff improvement is a topic which attracts the attention of many school administrators, and the unique problems of any district or school must be considered. The high degree of interest in the Guggenheim project is evidenced by visitors both from abroad and from the U.S. who take advantage of trips taking them through Chicago, or who come to Chicago for the sole purpose of visiting the school.

THE GUGGENHEIM SCHOOL

The Guggenheim Elementary School is housed in a two-story brick inner city building located in the heart of Chicago's south side black ghetto. The 100% black student body is composed of about 400 students in kindergarten through eighth grade (Chicago's public school system has no junior high schools or middle schools). A small number of students are transported by school bus, but most walk from only a few blocks away; the school is situated in a quiet neighborhood at the corner of a four-way stop on a major side street (a source of traffic noise in some classrooms).

The basic descriptions of Guggenheim school population data are shown in Table 1. The school qualifies annually for Chapter I supplementary funds (Called Title I in Illinois Department of Eduction regulations) for educationally disadvantaged students because of the low family income levels of the students. These funds may be spent in any way the school determines appropriate to increase levels of achievement among students who are achieving poorly. The faculty at Guggenheim have been extremely stable, with an average tenure of more than twenty years in the building. Since these teachers have been in the system so long, they have seen a number of attempts at change or implementation of programs imposed by the central administration. Prior to 1985, several years of conflict had been experienced in a reading curriculum fiasco improperly named "Mastery Learning." A "continuous progress" mandate was also considered a failure. Staff development was considered by all to be inadequate. No local district office curriculum consultants were employed for training of staff and few of the teachers had master's degrees because of the long school year and limited time in the summer to pursue the degree. Thus, teachers felt isolated from support services and caring; unionization provided an illusion of some control over instruction and curriculum, but end-of-year achievement test results were still unsatisfactory for most grades. In 1984 the district office viewed the achievement test results with suspicion as not reflecting the true and observable low levels of student performance in the school. High school staff, for example, would complain that students who were reported to be able to read at grade level were really far below the reported scores. In 1985, central administration staff members conducted the school-wide April achievement testing using only tests appropriate to the grade level tested, and the scores for 1985 were considered a valid baseline for monitoring changes in the school during subsequent years. Staffing during the first experimental year involved several problems. One teacher was chronically ill and another died during that first year, making necessary the use of long-term substitute teachers. In addition to the regular classroom teachers, the staff includes full-time special teachers for library, physical education, and learning disabilities resource room special education, and a Chapter I teacher for a pull-out program for reading assistance.

Pupils from the neighborhood typically enter kindergarten with deficient language and developmental skills, and a summer head start program produces insufficient results to compensate for the lag in pre-kindergarten skills. Children generally enter first grade almost a year behind in foundation skills and the class averages reflect this one-year lag throughout all of the grades (See Table 8).

Table 1. Population Descriptions at Guggenheim Elementary School (Chicago)

April Testing Data	1985 (Base)	1986	1987	1988
Number of Teachers	21	22	23	24
No. of Students Gr. 1-8	382	345	348	378
Attendance in %	93.1	93.3	93.1	92.1
Percent Low Income	65.3	52.4	51.6	82.6
Stability %	86.6	86.1	90.3	86.9
Race: Percentage Black	100	100	100	100

* * *   * * *   * * *

School building conditions were disrupted due to an asbestos removal program which was not finished until the fall of 1986. The ambiance of the classrooms was rudimentary or ignored at first, while more attention was given to the impact of the visual environment during the 1987-88 year.

A severe disruption took place at the beginning of the 1987- 88 school year in the form of month-long district-wide teachers' strike. Teachers observed universally that the students never recovered from the effects of this disruption.

THE PRINCIPAL

Michael Alexander, Guggenheim's principal, came to the school in February of 1985 as a part of the interest by the central administration to renew the faculty and curriculum. His background in working with disadvantaged and behavior problem students in a private institution permitted him to take a positive approach to changes. He found a staff in need of modern curriculum materials and instructional procedures. Several factors which required skilled attention were teacher perceptions about the role of principal, developing trust with experienced teachers and communicating instructional leadership. After completing a five-day teacher training workshop in Cleveland with Peter Kline, Mr. Alexander contacted the district office about SALT staff training for his teachers.

THE SALT TRAINING

The school year 1985-86 was a consolidation year for the staff, following the weeklong SALT workshop with Peter Kline, who is a teacher trainer with experience and success working with all types of students including monitoring and reporting. His experience with special students showed gains of three standard deviations in Language and an overall gain of 25% in achievement in an alternative school setting (Kline, 1976). The initial training of 25 hours in January and February of 1985 was an in-depth introduction to the principles and practices of SALT presented to a group of thirty teachers in a local hotel over a period of five days. Substitute teachers were provided for the entire staff through Chapter I funds. A major focus of the training was on appreciating individuals and enhancement of esteem and self-esteem through classroom activities such as a birthday circle of personal appreciation and acknowledgements.

The reaction of the teachers was so positive that two other groups of teachers from other schools were allowed to attend training sessions over nine days. Teachers from other schools in Chicago included those from Paul Robeson High School (8), Reed Elementary (9), Hinton Elementary (7), Yale Elementary (8), Oglesby Elementary (3), Lowe Elementary (2), and Parker Elementary School (2). More workshops for other teachers in other subdistricts were approved and scheduled for 1988 but funding throughout the district was frozen for all staff development and no workshops were conducted.

At Guggenheim, only a few teachers were using SALT extensively at first, including some temporary teachers. Most teachers were using some aspects of SALT however, including use of a passive concert, relaxation, and ball toss recitation.

During succeeding years, brief review sessions were conducted at Guggenheim on various topics associated with SALT, including positive teacher language, speaking suggestion, principles of instruction, curriculum principles, uses of music and games, and classroom visuals. A grant funded a series of workshops for the entire staff during the 1987-88 school year which were held off- campus and on weekends (Don Campbell, Peter Kline, Lyelle Palmer, John Grassi).

CURRICULUM AND MANAGEMENT CHANGES

In the fall of 1985, a curriculum change was introduced in the form of a new phonics program in the primary grades (Intensive Phonics Workshop and materials). Classroom interactions skills of teachers were also improved through participation by 70 percent of the teachers in the Phi Delta Kappa program, Teacher Expectations and Student Achievement (TESA). Objectives were stressed and specific reading outcomes were designated for completion at the end of each grading period. A Test Taking Skills unit was emphasized during one month in 1987.

RESULTS

Results were measured in various formal and informal ways. Table 2 shows a change in teacher perceptions of the proportions of class members who are able to self-instruct. On this measure, teachers were directed to place each class member in one of three categories: Able to self-instruct (the student is able to carry out directions and work as an independent learner with grade- level curriculum), Super-Able to self-instruct (the students is able to pursue personal exploratory curriculum interests as well as being able to self instruct), and Unable to self-instruct (teacher is required to instruct these dependent learners).

Table 2. Student Self-Instruction Capability Distributions from Teacher Opinionaires, K-8*

Year	Unable	Able	Super-Able
Norm Group	28%	58%	14%
April, 1987	59.5%	32%	8.5%
April, 1988	47.7%	37.3%	15.0%

*Teacher perceptions of students' ability to self-instruct following direction given by the teacher. Super-able students have self-motivated curriculum interests as well as self- instruction ability. Students unable to self-instruct require direct instruction by the teacher.

* * * * * * * * *

Moreover, the teachers observed essentially the same proportion of Super-Able students at Guggenheim as in the Minnesota norm group.Results of achievement tests for the first two years in reading and mathematics are shown in Tables 3 and 4. The data are presented in terms of rates of progress at each grade. Learning rates are computed as the value added in the current grade by subtracting the previous year's achievement level from that of the current year. An average student is expected to advance at a rate of one year of progress per year of instruction. Examination of the tables reveals the various rates of learning in reading and mathematics at each grade level. A more revealing statistic is shown at the bottom of each table in the comparison of the learning rate of the current year with the rate of the previous year. This statistical approach has the advantage of shifting the focus on grade level achievement to a rate of learning outcome (effectiveness of instruction).

Questions about the scores may be raised about validity of the test in precisely reflecting the Guggenheim curriculum. Also, scores are presented by grade rather than by teacher; the scores reported are medians by grade. If the assumption of validity of curriculum/test match is correct, clearly the individual teacher makes a great difference in the amount that a pupil learns in a given year, with a range in differences of eighteen months (students increase their learning rate by 9 months with one teacher, and the same students may decrease their rate of learning by 9 months with another teacher).

Table 5 shows the percentage of students at Guggenheim progressing at the normal rate of one year per year of schooling. This statistic is computed by the central administration office for each school in Chicago each October for the previous spring. A marked difference is shown between the 1984-85 control year in comparison to succeeding years in which the innovative practices were employed.

Table 3. Rates of student progress on the *Iowa Tests of Basic Skills* Reading Composite scores, 1987, 1988*

	Grade Levels							
Average Progress Rate in Years	1	2	3	4	5	6	7	8
1.4			ox					
1.3	x							
1.2				o				
1.1					o	x	x	x
1.0	o	-	-	-	-	-	-	-
0.9		x			x	o	o	o
0.8								
0.7								
0.6				x				
0.5		o						
Learning Rate Changes:		-.1	+.9	-.8	-.3	0	+.2	+.2

1986-1987 Learning rate changes in students by grade, comparing the effects of teachers at different grade levels on the same students. For example, 1988 third grade rate minus 1987 second grade rate = change in rate of school year.

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*Grade scores of students are subtracted from scores of same students the following year to determine the value added rate of increase of learning in the following year.

o: 1986 Value Added, 1986 grade scores minus 1985 scores
x: 1987 Value Added, 1987 grade scores minus 1986 scores

Conclusion: The teacher makes the difference!

Table 4. Rates of student progress on the *Iowa Tests of Basic Skills* Mathematics Composite, April 1986, 1987*

	Grade Levels							
Average Progress Rate in Years	1	2	3	4	5	6	7	8
1.8						x		
1.7								
1.6		x						
1.5						o		
1.4								
1.3								
1.2		o		o				x
1.1				x				
1.0	xo	-	-	-	o	-	-	o
0.9			ox		x			
0.8								
0.7							o	
0.6							x	

Learning rate changes:

+.7 -.3 +.2 -.3 +.8 -.9 +.5

Learning rate changes compare the effect of different teachers on the same students in different grades:

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* Grade scores of students in one year are subtracted from the scores of the same students the following year to determine the value added and rate of learning. For example, 1986 second graders = 1.1 years progress in mathematics for the 1985-86 year.

o: 1986 Value added, 1986 grade scores minus 1985 scores
x: 1987 Value added, 1987 grade scores minus 1986 scores

Table 5. Percentage of students in all grades achieving one year of progress on the *Iowa Tests of Basic Skills* per school year

Year	Reading	Mathematics	
1985	27.5	40.7	Control year
1986	55.7	56.9	
1987	45.4	54.2	
1988*	52.0	52.0	

* An abbreviated eight-month school year

* * *   * * *   * * *

Tables 6 and 7 show the results for the abbreviated year of 1987-88 comparable to tables 3 and 4. The rate of learning shown has been adjusted to account for the shorter school year. In general, achievement rates in most classes declined in that school year in comparison to rates of previous years.

Table 6. Adjusted rates of student progress on the *Iowa Tests of Basic Skills* Reading Composite scores, 1988 (N=378)*

		Grade Level							
Average Progress Rate in Years	K	1	2	3	4	5	6	7	8
1.8	x								
1.7									
1.6									
1.5									
1.4								x	
1.3									
1.2									x
1.1									
1.0	-	-	-	-	-	-	-	-	-
0.9		x				x			
0.8			x	x					
0.7							x		
0.6					x				
Learning Rate Changes:			-.55	-.1	-.8	+.3	-.2	+.3	+.1

---

* 1987-1988 Learning rate changes in students by grade to compare the effects of teachers at different grade levels on the same students.

* * *   * * *   * * *

Table 7. Adjusted rates of student progress on the *Iowa Tests of Basic Skills* Mathematics Composite scores, April, 1988

		Grade Level							
Average Progress Rate in Years	K	1	2	3	4	5	6	7	8
1.8	x								
1.7									
1.6			x						
1.5									
1.4									
1.3									
1.2		x							
1.1									
1.0	-	-	-	-	-	-	-	-	-
0.9					x				x
0.8						x	x		
0.7								x	
0.6									
0.5									
0.4				x					
Learning Rate Changes:			+.6	-1.2	0	-.3	-.1	-1.1	+.3

---

* 1987-1988 Learning rate changes in students by grade to compare the effects of teachers at different grades on the same students. For example, 1988 third grade rate minus 1987 second grade rate = change in rate in tenths (months) of a school year. (See Table 4.)

KINDERGARTEN RESULTS

The kindergarten class was a special concern since students typically ended the kindergarten year almost a year behind national norms. Table 8 compares four successive years of results and shows a substantial increase in kindergarten achievement levels. Table 9 shows the rates of learning in the SALT kindergarten which is staffed by one teacher and one aide.

Table 8. Four year kindergarten achievement medians on *Iowa Tests of Basic Skills*, 1982 norms

ITBS Subtests	1984-85 N = 43	1985-86 N = 44	1986-87 N = 42	87-88* N = 46
Listening	K.0	K.1	K.6	K.6
Word Analysis	K.4	K.3	1.1	K.9
Vocabulary	P.7	P.8	K.0	K.1
Language	P.9	K.1	K.3	K.2
Mathematics	K.1	K.1	K.6	K.8
Average Median	K.02	K.08	K.52	K.52

P = Pre-school Level (Portion of School Year; 0.1 = one month) K = Kindergarten Level (Portion of School Year; 0.1 = one month)

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*Abbreviated school year due to one-month strike in September

Table 9. Accelerative-Learning Kindergarten Class Pre- and Post-test Achievement Medians for School Year 1987-88 on *Iowa Tests of Basic Skills,* 1982 Norms (N = 46)

ITBS Subtests	November Pre-test	April Post-test	Progress in 5 mos.	Progress Rate/yr.
Listening	P.8	K.6	.8	1.6
Word Analysis	K.0	K.9	.9	1.8
Vocabulary	P.6	K.1	.5	1.0
Language	P.7	K.2	.5	1.0
Mathematics	P.9	K.8	.9	1.8
Average Median	P.8	K.52	.72	1.44

P = Pre-school level (Portion of school year; .1 = one month) K = kindergarten level (portion of school year; .1 = one month)

* * * * * * * * *

A PERSONAL REPORT

Nancy Ellis, an eighth grade teacher with 18 years experience at Guggenheim Elementary School at the beginning of the project, noted that her initial reactions were excitement and that without SALT she would have burned out as a teacher. She taught mathematics, English, history, and social studies. She reports that she usually took three to four weeks to teach her classes how to do three - level outlining to mastery. With SALT, 100% of her class completed the objective with 80% mastery or above--a level of competency better than any previous class she had taught. She also taught her students to transfer in writing, and used dramatic activations with scripts written by her OR HER STUDENTS! She speaks enthusiastically of her transformation as a teacher, stating that, "Before global learning I was frustrated enough to quit teaching. Now I'm more excited than during my freshman year of teaching."

SALT LEARNING LABORATORY

Nancy Ellis began a special project in September of 1986 in which she worked with the students with lowest achievement scores, those in the stanines 1-3 for two consecutive years. These 70 students were in grades 5-8 and were seen in groups of about 12 each during five 40-minute periods, five days per week. Reading was not taught as a subject, since it was integrated into dramatic units. Students developed in confidence to the point that they were able to participate in district-wide competitions.

Tables 10, 11 and 12 show the achievement gains for each class at each grade level for each school year. Students in the program for the second year comprised

41% of the 1987-88 group. These results approach those reported by Prichard and Taylor (1980) and other special needs studies (Palmer, 1985, 1988) in which progress rates of two to four times that of normal progress were found.

AFTER-SCHOOL ACTIVITIES

During the 1987-88 school year academic clubs were formed for after school activities one or more days per week (3:15-4:15 PM) for spelling, reading, and mathematics. In addition, community recreation activities were conducted by teachers volunteering time after school, as the school served as a community center on those days.

CHANGES IN PEOPLE

Informal observation showed the following results: a warmer teacher presence with students; an attitude change in teachers; teachers now volunteer themselves more (after school activities); students are enjoying school more, and enjoy their teachers; the teachers are more reflective; the teachers have a renewed emphasis on curriculum; teachers have an awareness of instruction processes and a concern for effectiveness. Among special needs students, Chapter I classes are now attractive and positive. Students take pride in their special class. Some students have also commented on attitude changes in their classmates. "When we first started going to accelerated learning they thought we were dumb," says Steve, a seventh-grader commenting on the reactions of his peers. "But they see us coming back smiling and telling them all we've learned. They want to get in[to the class] bad," says classmate Alton.

Table 10. Years of Achievement Gain per Year of Service in a Chapter I Pull-Out program using Accelerative Learning in the 1986-87 School Year

Class/	n	ITBS Reading		ITBS Mathematics	
Grade		Mean	Median	Mean	Median
5	11	1.32	1.3	.87	.9
6	8	.75	.8	.99	1.05
7	10	.85	.5	.79	1.05
7	6	1.97	1.9	.93	1.20
7	8	1.24	1.0	.34	.4
8	7	1.41	1.4	1.1	1.0
8	9	.95	.8	.9	1.1

* * *   * * *   * * *

Parents also have voiced reactions to the SALT class. "What did you do to my child?," exclaims a mother of a child attending Guggenheim's summer program, where only global teaching was used. "He wants to come! He likes it!"

Table 11. Years of Achievement Gain per Year of Service in a Chapter I Pull-Out Program Using Accelerative Learning in the 1987-88 school year*

Class/	n	2nd	ITBS Reading		Mathematics	
Grade		yr.	Mean	Median	Mean	Median
5	13	1	1.00	1.2	.74	.6
5 - 6	14	3	.86	.7	.74	.9
6	10	6	.56	.5	1.01	1.0
7	13	7	1.25	1.2	1.92	1.1
8	18	11	1.20	1.2	.97	.9

*Abbreviated school year due to one-month strike in September. Annual April assessment using the *Iowa Tests of Basic Skills*

* * *   * * *   * * *

Marked differences are shown in teacher effectiveness on ITBS growth. Clearly, the teacher makes the difference in pupil progress rates. Nancy Ellis maintains that "Teachers no longer believe that students are responsible for learning, accepting instead that responsibility themselves. There is a new sense of accomplishment and caring. Teachers are now aware of orchestrating the total environment to support the learning process".

Table 12. Percentage of Students Progressing Nine Months or More Per School Year in an Accelerative Learning Chapter I Program

ITBS Subtest	1986-87	1987-88*
Reading	56.7%	61.0%
Mathematics	67.2%	51.5%

* Abbreviated school year due to September strike (only eight months of instruction between annual April assessments).

* * *   * * *   * * *

PROBLEMS

Few teachers use "SALT," or at least what SALT trainers consider the entire global cycle. Most teachers adopt isolated components in a disjointed fashion. They have the attitude that they don't know how to use the various procedures and that they have no time to develop materials (scripts, posters, games, etc).

If teachers are to internalize procedures they must use them consistently. Some problems were well-handled over time, such as the visual environment. The 1987-88 school year was one of progress in the area of affirmations and supportive bulletin boards and posters, including prominent recognition of student activities and achievements. Street noise has been incorporated into some classrooms with positive suggestion as a relaxation cue.

An effect of time has been noticed by some in the possibility that the greater the time distance from the training, the less formal the applications of SALT become.

QUESTIONS

Teachers sense substantial growth which is not always measurable on achievement tests. Growth spurts and plateaus might be hypothesized for some of the declining scores in some content at some grades, but results are inconsistent from year to year. Teacher differences are great. The validity question is the most pressing: How much SALT must a teacher use in order to be considered a SALT teacher? How many teachers must use a substantial amount of SALT in order for a school to be a SALT school?

RECOMMENDATIONS

Michael Alexander proposes that the entire staff be retrained over a two week period through role play in which every SALT element in the cycle is practiced to mastery by every teacher. Also, rewrite all lesson plans during 4 weeks in the summer. Acquire a basic library of SALT materials. Establish quarterly coaching sessions on some Friday/Saturday weekends. An evaluation component for teachers is needed in addition to evaluation of pupils. Professional support groups and peer teams are needed, as well as time to meet. Good quality tape decks which produce consistent attractive sound are needed. An on-going, systematic review of the 17+ SALT components is needed. A structure is needed for presentation, assimilation and fine-tuning of classroom practices.

In addition, SALT trainers should designate the minimal list of resources which should be available for the start-up of a staff improvement project. Lists of equipment needs and availability, a minimal list of tape recordings, publications for reference (books and journals), contact persons in other schools currently using SALT, membership in the SALT Society and conference availability, as well as a list of available workshops on a wide variety of topics for supplementary training. Training must be viewed as a developmental process occurring over several years utilizing many resources. These resources must be developed to support the efforts of teachers and administrators in refining the goals and actions which emerge in the change process.

THE NEXT FIVE YEARS

Nancy Ellis has been designated as a full-time building-level SALT consultant to work with staff to accomplish the foregoing recommendations. She will serve as a coach to the staff. The current grant support for staff development is continuing, and new grant support is being sought. Specific goals for the resource staff have been developed for refinement of existing teacher skills: Peter Kline (Decoding & Mind Maps), Don Campbell (sound and music), John Grassi (curriculum units), Lyelle Palmer (visuals). Monitoring of the project in many new ways will be conducted by staff at the University of Illinois at Champaign-Urbana.

RETHINKING TEACHER TRAINING

As SALT trainers increasingly turn attention to school settings and the possibility of dealing with institutional units, it is important to note the Stages of Concern About Innovation described by Hall (1978): Awareness, Informational, Personal, Management, Consequence, Collaboration, and Refocusing. Along with Hall's (1978) Stages of Use (Non-use, Orientation, Preparation, Mechanical Use, Routine, Refinement, Integration, and Renewal), Stages of Concern may tell us something about the steps necessary to accomplish uniform practice which can produce the proper kinds of studies which are the concerns of researchers, and innovative school staffs and administrators.

Acknowledgement: Dissemination of the data contained in this project was aided in part by a grant from the Winona State University Foundation.

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Rapport provisoire sur les résultats positifs d'une école élémentaire à la suite d'une formation en apprentissage et enseignement accélérés pour tout le personnel de l'école.

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* * * * * * * * *

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BOOK REVIEW

The Everyday Genius: Restoring Children's Natural Joy of Learning-- And Yours Too. By Peter Kline. Virginia: Great Ocean Publishing, Inc., 1823 North Lincoln Street, Arlington VA 22207. ISBN 0-915556-18-9 Reviewed by John Senatore.

To existing endorsements, recommendations of this book, I add mine.

The teacher stopped to thank me for the workshop. I asked if he wanted to learn more about restoring the kinesthetic dimension of intelligence to learning. "No," he replied, "I already know more than I'm using."

Cited as the "genial dynamo" of Integrative Learning, Kline notes, "Most people are too busy to do more than they're already doing. So, this book is designed to fit in with your already existing schedule."

Centered in solid research and composite experiences of "How You and Your Children Naturally Learn," Kline's book has three parts: Part One: The Promise of Integrative Learning; Part Two: Setting the State for Integrative Learning; Part Three: Falling in Love with Learning.

Fronting this book is a partial list of activities to stimulate learning with the news that it is not necessary to read the whole book before trying out these activities. Notice what attracts you; start there. For example, Chapter 12: "I Never Heard a Word You Said: Most people never get listened to adequately. Those who do, get better at thinking." Do the activity; watch the transformation in you, your home, your work place. Activities, not gimmicks. Kline promotes a "philosophy" that works.

Kline gently but persuasively argues: Changed learning environments for an already changed world. Kline includes a quote from an administrator I like: "The time has come that if they think the old way is better, they ought to have to prove it." During my third session with dropouts, teachers and mentors, a man from the state department of education, looking drained and discouraged, entered, found a seat, listened, took notes. The next day's local paper reported under a picture of this man that he had come to work with parents and no parent had attended.

In An American Agenda, a recent report, Terrel Bell, former US Secretary of Education wrote: "...we must pay closer attention to strategies that will help parents support the mission of schools more effectively...Even the best school cannot compensate for failure at home."

Kline's book, addressed to parents, can help all of us restore excitement and satisfaction to learning so everyday geniuses grow to address and affect current global living. Re-visioned homes for a re-visioned world.

Pleased with the blooming crocus and tulips, I now stood inside helplessly watching the hailstorm shred the flowers. I knew how the flowers felt. Traditional methods of education I knew, and still sometimes observe, shredded many flowering geniuses. Kline shows how homes and schools must be, can be-- and some already are--places where "the best party in town" is going on.

Part Three helps us "discover the deep reserves of intelligence most of us never realized we possess. They can inspire you and your children to collaborate in the search for your everyday genius." More than seek, I insist; collaborate, seek--and find. I testify these activities work--when I do. I was familiar with most of these activities, so my challenging choice remains to use what I know works when pressures whisper, "Change your priorities!"

What I liked about Parts One and Two is that Kline brings in research without being technical, academic, boring. Much here will be familiar to SALT practitioners; Kline invites you to skip these parts. While reporting on the dangerous, must-be-changed status quo, Kline writes a book of successes, presents models of success for us to use.

Integrative Learning, for which there is plenty of evidence to demonstrate its effectiveness, is known by other names: accelerated learning, Optimalearning, Superlearning, Suggestopedia, whole-brain learning and holistic learning. All share the assumption that "by changing the learning environment and the way information is presented, we can get substantially better results than are possible with traditional education." How did our ancestors do it? Kline asks at one point, and answers: "You were born to learn with your whole body and all your senses. You were not born to sit in a chair eight hours a day and listen to someone talk or to pour over books year in and year out."

We are always sitting on our ass-umptions. Kline helps us surface these assumptions, make them explicit and change them. "But the most significant thing I can do is encourage you to believe that you and your children have unlimited learning capacity." New beliefs for necessary new models. So, insert this new belief in yourself and do just one of Kline's activities. Then discover experientially what happens when you sit on new assumptions.

Once a Zen master told me, "Schools are where they teach you to be ignorant." I had to ponder that. Yes, I learned to be an ignore-ant. What I was asked to ignore usually was what was most interesting and exciting to me. Not only did I learn to be ignorant, I collaborated in being de-selfed. Chapter 16: "Is It Really You?" addresses re-selfing (my words, not Kline's).

I have known what Kline means when he says, "Teaching insults the mind." I have also known what Kline refers to when he says in Chapter 19: "Only the Helpless Never Ask for Help", that some help is genuinely harmful, some is disrespectful and some is a nuisance.

Showing that we process information through our limbic system, an emotional processing center, Kline emphasizes the importance of learning to deal with feelings and practicing expressing emotions for fun and family harmony. My inference: Many of us are emotional illiterates and could use more help than he gives here. But start with Kline.

Consequences. "Now, however, the consequence of poor education threatens not only the underclass," Kline wrote, "it's a menace to everyone." I have been asking recently as I see/hear/feel political, economic, social and daily events: "Have we raised several generations of people to believe they do not have to accept consequences if they have a good reason, a good excuse, an explanation, are beautiful enough, have been victimized enough? Are some of these people now in Washington, DC?"

Daily I re-discover what incredible learning systems we humans are. The "bad" news. We use our everyday genius to learn useless, ineffective, unloving and inappropriate things as easily and as thoroughly as we learn loving, useful, effective, freeing, exciting, joyous functions. Kline's book offers ways to avoid learning stupidity and to restore our innate genius.

I recently raised my question about consequences to an employer. He told me about an employee who called repeatedly to say she would not be at work because her car wouldn't start, her cat died, she had a personal crisis, she was ill. He fired her. When she came to collect her pay, he paced her through a series of events: I can't pay you today because my car wouldn't start; I didn't write your check yet, I had a personal crisis, etc. We are all teachers, but what have we consciously chosen to teach? Kline's book may serve as a stimulant to choosing again and as a road-map to restore our natural joy of learning.

I like Kline's Table of Contents and wish he had included an index. I like his well-designed, readable chapters with their global overview, penetrating headlines, anecdotes, wisdom, joy, excitement and shared successes. Appendix One: Hope for the Brain-Damaged Child involved me deeply. Appendix Two: The Principles of Integrative Learning (mainly for teachers) provides me with a reference, reminders and a check.

I want this book to be in professional and personal libraries, to be read and used in many courses, to be stocked in bookstores for parents to buy, recommend and use. I want this book to be another tool for persons committed to addressing the critical, ever-widening gap: The vital gap between information and learning.

"The time is ripe for politicians of every persuasion to display leadership by helping create a vision of what can be accomplished with the educational, technological and creative resources we now have," Kline wrote. Kline, co-founder of Thornton Friends School, shows we don't have to wait for politicians; we can make genius bloom in a home, a neighborhood, a school, right now.

Education is not a private, isolated activity; now education is global with global consequences. Kline's book shows: It need not be the way it is; we have done and can do it better. But we must choose anew, choose again. Will you accept the invitation to make a place of your choice "the best party in town"? Your chosen reply does have real global consequences. Kline's book of experiences increases choices. And choice is better than no choice. Choose joyful learning. Kline wrote: "Geniuses are persons who had the opportunity to learn extremely well".

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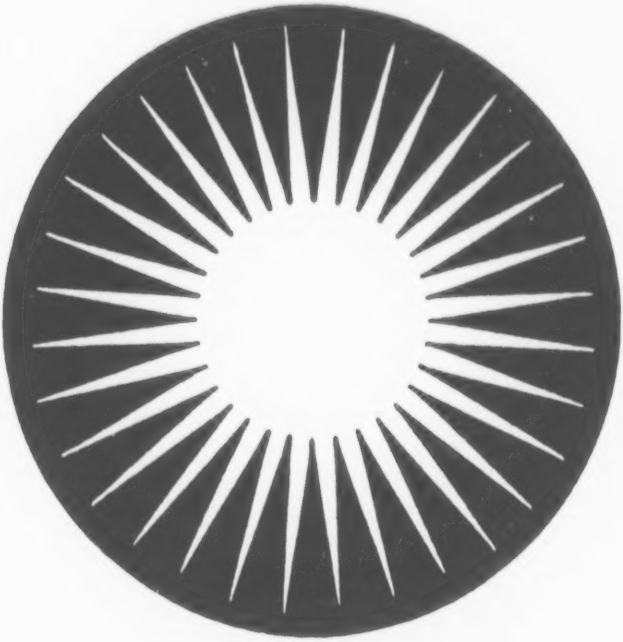

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Defining and Demystifying Baroque, Classic and Romantic Music

Amanda E. Amend
Grinnell College

ABSTRACT. This article analyzes the music used in SALT, with the goal of providing the reader with a background understanding of the basic elements and styles of Baroque, Classic and Romantic music. The basic elements of music are explored, noting how these characteristics affect the listener, and how that knowledge can be used in choosing appropriate music for SALT classroom applications. Baroque, Classic and Romantic music are defined and compared, making clear their historical, stylistic and structural differences. Major musical genres and common musical terms are defined.

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Music is a powerful force in our lives and in our learning. Evidence of its potency are its ritual, religious and therapeutic roles in human lives since the beginning of human culture, and its rise to a place of omnipresence in our society today. As SALT teachers and researchers we are aware of music's potential, and we are in need of the specific knowledge which will allow us to maximize that potential. The purpose of this article is to give you that knowledge.

Music is dual-planed. On one plane are the basic elements which affect us, physiologically and in the deepest elements of our psyches, while on another are compositional characteristics and structures which reflect and express the values of a culture. It may be our response to these multiple levels in music which makes music the powerful learning tool it is. It is also this complexity which concerns teachers not highly trained in the musical arts. A learning medium as potent and complex as music, must be understood, to be used to its maximum. That understanding is not as far away as it might seem.

Music is a language, just like our spoken language. The music we use in SALT speaks in the same language that one hears all the time in rock music, pop music, jazz, and movie scores. It permeates our culture, so it is already a part of you, even though you may not be consciously attuned to it.

In this article we'll first explore the basic elements which make up music and through which music speaks to you. Next, we'll look at the differences between the Baroque, Classic and Romantic periods of music, as applied to their use in passive and active concert readings. Finally, we'll define the most frequently encountered musical genres and decode some common musical terms.

ANALYSIS

THE BUILDING BLOCKS OF MUSIC

The basic elements in music, in order of their importance, are tempo, or speed; rhythm, or motion; dynamics, or loudness/softness; modality, or scale structure (musical vocabulary); harmonic tension, or how notes interact; and meter, which organizes and shapes music. (This hierarchy is concluded from the author's observations and study into the nature of music, and from a synthesis of information sources on music therapy and research. Several of the most informative of these sources are listed in the appendix.) These are the ingredients which composers combine, as in a recipe, to create different flavors or moods. An understanding of each of these ingredients and of how they interact, will clarify why the music you've chosen affects your class as it does, and will give you guidelines for selecting music.

TEMPO

Tempo, or speed, is the most potent factor in music, the element which affects the listener first. Fast tempi (plural of tempo) are highly stimulating. They can feel bright, exuberant, stormy or dramatic, while slow tempi are usually relaxing, thoughtful, or sad. Pieces of music are divided into movements, as books are divided into chapters, and each movement has its own tempo. These are usually described by the Italian words for fast, moderate or slow. Some fast tempi are "Presto", "Vivace" and "Allegro". Medium tempi are "Moderato" and "Andante", and slow tempi are "Adagio", "Lento", "Largo", and "Grave". Tempo is such a strong force that it will dominate and color every other musical element. Picking music of appropriate tempo for your purposes is the most crucial step in effective SALT music use.

Put on a tape, or turn on the radio, and listen. What is the approximate tempo of that piece? Can you imagine it faster or slower? How would that change how it feels to you?

RHYTHM

A rhythm is anything you could clap, tap, or dance. Rhythm is movement through time, and it provides music's motion. The intensity of rhythmic motion contributes to our perception of tempo, with driving or irregular rhythms communicating energy and intensity, and smooth, regular rhythms producing calmness. Rhythm and tempo are both regulated by meter, which is discussed in the last part of this section.

DYNAMICS

The second most dominant element in music is its overall dynamic level, or how loud or soft it is. The effects of dynamics are similar to those of tempo-- loud dynamics express higher energy than soft, and that can mean happy versus sad, outward versus inward, stormy versus calm, or even light versus dark. Dynamics vary within each movement, but often composers match dynamics and tempo, using loud dynamics for fast passages, and soft dynamics for slow. Dynamics are the strongest reinforcer of the mood created by tempo. Conversely, the cross-pairing of dynamics and tempo (soft with fast, and loud with slow) creates an element of tension and allows the musical expression of subtle, complex ideas and emotions. Fast and soft can communicate suspense, expectancy, and restrained excitement, while slow and loud can intimate ceremony, nobility, and inner strength. When combined with the other musical elements, the possibilities are endless. To use this awareness in active concert readings, note the interaction of tempo and dynamics in your recordings, pick combinations that feel appropriate to your subject matter, and when reading, let your voice match the music's emotional content.

MODALITY

Baroque, Classic and Romantic music is written using vocabularies of notes, called "scales". Scales provide patterns of notes which act in music as grammar acts in language, shaping melodies and their accompaniments along general rules. There are two basic scale patterns which concern us: major scales, and minor scales. These are also defined as "modes". "Mode", or "modality", means the pattern or relationship of notes within a scale. The most common modes in Baroque, Classic and Romantic music are major scales and minor scales, and thus the most common modalities are major and minor. Pieces written in major keys ("key" simply means the note chosen to be home base, to begin and end the scale) are brighter, or happier than pieces written in minor keys. Tempo and dynamics set the main spirit of a piece, while modality adds a subtle, but important, mood flavoring. If a piece is fast, loud and major, it is undoubtedly exuberant and highly energized. If fast, loud and minor, it will be stormy, and suspenseful.

The interaction of these three elements is too varied to describe in words. The following musical examples are clear illustrations:

MOZART: SYMPHONY #35, D MAJOR, 1ST MVT (ALLEGRO CON SPIRITO): Fast and "with spirit", "forte" dynamic overall (loud), and major. Bounding exuberance and joyful energy.

MOZART: SYMPHONY #25, G MINOR, 1ST MVT (ALLEGRO CON BRIO): Fast and "with brilliance", forte dynamic overall, and minor. Stormy and dramatic. Foreboding overtones.

ROSSINI: OVERTURE TO THE BARBER OF SEVILLE (the allegro section, following the slow introduction): Fast, piano dynamic (soft), and minor, with sudden forte chords which alternate minor and major. Notice the wide range of moods expressed in this short work! The piano dynamic and minor key are suspenseful, but the tempo makes it playful and fun-loving.

BEETHOVEN: PIANO SONATA #8, 2ND MVT (ADAGIO CANTABILE): In a slow but "singing" tempo, piano dynamic, major key. That combination of adagio and piano produce pensiveness, but the major key contributes an optimism which keeps this movement from sounding sad. (The terms "piano" and "forte" in the above paragraphs are the Italian for "soft" and "loud". The term "pianoforte", which is the full name of the instrument which we commonly call "the piano", means the "soft-loud". The instrument was named that in the late Baroque/early Classic periods, when it was invented, because it was the first keyboard instrument which could alter its dynamics via pressure on the keys. That was quite an innovation.)

Listen to your music! Is it too stormy for your purposes? Then, if it's minor, look for a movement in a major key. Is it too exciting? Look for a slower tempo.

Is it too bland? Do you want more drama? Then look for a faster tempo or perhaps a juxtaposition of tempo and modality, fast/minor or slow/major.

The key and modality of a piece are listed on your record jacket, defining and describing that piece. ("Mozart, Symphony #29, A Major"). Beware, however, that for variety, composers will change the mode from one movement to the next (from major to minor, and vice versa), and this is often not indicated. A symphony in a major key will usually have its 1st, 3rd and 4th movements in that major mode, but may use a minor key for the 2nd movement, which is often slow in tempo, as well. Listen to a movement before using it in the classroom, and practice with it to maximize your effectiveness.

Sometimes the German words "dur" and "moll" are used instead of "major" and "minor". A mnemonic device to remember which is which: "OH! Isn't it SAD (minor), that the music's all MOLdy (moll)." (Sad - minor - moll).

HARMONIC TENSION (AND OTHER TENSION PRODUCING FACTORS)

Harmonic tension is an element to be aware of, particularly in Romantic music. "Harmonic tension" describes the tension which arises when notes played together clash, dissonantly, ("dis"="not", "sonant"="sounding", "not sounding good together"), and which is then resolved by notes that fit together consonantly, ("con"="together", "sonant"="sounding", "sounding good together"). In the Baroque and Classic periods harmonic tension was used sparingly, using dissonance to lead the ear to consonance, to create the feeling of anticipation and resolution. In the Romantic period, however, as composers sought to express the ever more heavily laden emotions of that time, harmonic tension became a main element in the compositional arsenal. If you sense elements of tension in a piece, which you feel aren't appropriate to the ambience you wish to create, look to harmonic tension as a possibility, and turn to earlier Romantic or Classic works.

Factors other than harmonic tension can also produce unease in the listener. Extremes or sudden changes of any sort produce tension-- sudden tempo or dynamic contrasts, or extremes of tessitura (how high or low an instrument goes) will do so. Mussorgsky's Night on Bald Mountain illustrates this, with its sudden dynamic changes, much dissonance, and unusual juxtapositions and combinations of instruments.

Pieces like this can be very effective if used when that tension is desired, for dramatic readings about World War II, for example, or for active concerts describing volatile chemical reactions. But be aware of their unsettling potential at times when those effects are not desired.

METER

There is a final element in music which we haven't addressed, but which is as important to music as your heartbeat is to you: rhythm's organizing principle, meter. A rhythm is anything you could clap, tap, or dance. Underlying all rhythms in music is a steady pulse, which forms the heartbeat for music. How fast those pulses go, determines the tempo. Those pulses or beats are grouped into "measures", or "bars", just as letters are grouped into words. How many pulses are felt in each measure? That is determined by the "meter". The meter of a piece defines how many beats will be felt per measure. "Duple meter" means there are two or four beats per measure, "triple meter" means there are three beats (or sometimes six beats) per measure. While a composer can choose whatever meter he or she wishes, duple and triple meter are the norm in the Baroque, Classic and Romantic periods. (A beautiful exception to this, is the 2nd movement of Tchaikovsky's 6th Symphony, which has 5 beats per measure.) Feeling the meter will allow you to move more easily with the music and to more effectively pace your concert readings. Since the first beat of each bar is the strongest (loudest or heaviest) beat, you may wish to place key words on those first beats. You may also find it effective to chunk words together within a measure, with the most important words falling on the strong beats. Awareness of meter, like awareness of all the elements we've discussed, is ingrained in you by many years of subliminal input. Your ability to use these elements is simply a matter of first, awareness, and then exploration.

THE DIFFERENCES BETWEEN THE BAROQUE, CLASSIC AND ROMANTIC PERIODS.

The Baroque, Classic and Romantic periods are three epochs in history. They differ chronologically and philosophically, and those differences are expressed in most aspects of their music. You can equate these differences to stages you've gone through in your own life, times when you've strongly felt certain ways or believed certain things. Both those feelings and beliefs change as we grow, until we may look back and not know the person we were a few years ago. Such happened between the Baroque period, which was roughly from 1600-1750, the Classic period, from 1750-1825, and the Romantic period, from 1825-1900. (Note: The term "classical music" is commonly used to mean any music other than rock, pop or jazz. Music of the "Classic period" means music from one short period of history, with very special qualities and meaning.)

The Baroque period brought an explosion of growth to Western culture. Bacon, Descartes, Galileo and Newton were each bringing innovations of thought and knowledge to the arts and sciences, and changing the intellectual and cultural basis of our world. Similarly, around 1600, music's evolution brought it to a point of stunning metamorphosis. The modes, or musical languages used in composition, became standardized, and many of the major musical genres which we know today, germinated. This was a time of excitement, overwhelming exuberance, exaggeration, decoration, contrasts, striking color, and grandiose gestures, all both seen in Baroque art and architecture and heard in Baroque music. Look, for example at Gian Lorenzo Bernini's sculpture, Pietro da Cortona's frescos, the interior architecture of 17th century churches (particularly in Germany), or that of St. Peters and Versailles. Listen to Johann Sebastian Bach's Orchestral Suites, his Brandenberg Concertos, or George Frideric Handel's Water Music. These all express those qualities described above. Exuberance is heard in bouncing rhythms and long, ornate lines of music. Decoration is heard in frills and froths of notes, called ornaments. Exaggeration and grandiose gestures are expressed in regal fanfares of sound and exaggerated rhythms. And while there may be striking contrasts between light and dark (as in the paintings of Tintoretto and Rembrandt) or of dynamics (as in the concerti grossi of Handel), the overall effect of a movement or work of art is that of grand design and uniformity of texture and message. In music, this means that one mood or "affect" dominates a movement. That affect may be exuberance or it may be pathos, but the mood is consistent throughout the movement. This may be why Baroque music is suitable for passive concert readings-- the uniformity of mood creates a rich and constant tapestry on which the concert reading can ride. In contrast to this, is the music of the Classic and Romantic periods.

The Classic period was a reaction to the opulence, ornamentation and exaggeration of the Baroque. Balance, simplicity, and symmetry became the lauded values, and these, too are seen and heard in the arts of the period. A revival of themes and techniques from the golden age of ancient Greece, brought that desired refinement to art and architecture, while music reflected those values through simplicity of melody and harmony and clearly defined internal compositional structures. Listen, for example, to the first movement of Mozart's Piano Concerto #12, (in A major, K. 414). The first quality you may notice is clarity. The melody and harmony are clearly stated, rather than intricately interwoven as in the Baroque. Next, listen for a conversation in the music. Musical phrases in the Classic period are like sentences in speech. Each phrase has a definite beginning, middle and end, and each is answered, as though in conversation with the next. In the Classic period, phrases contrast each other in mood. Part of the balance and wholeness in Classic music is the complement of emotions, expressed and contrasted within each movement. This is in distinct contrast to the Baroque manner, which, as you saw, was to express only one dominant mood per movement. The overall structure of each Classic movement follows a similarly clear pattern. In the example we're exploring, it is a three-part pattern, unfolding like a thesis, argument, or novel. The first section states a number of contrasting themes or ideas, first presented by the orchestra alone and then by soloist with orchestra. This section is called the "exposition". Next comes the "development", when the ideas stated in the exposition are taken apart, fragments of them being presented in different ways. The last section is the "recapitulation", where the exposition is restated in a slightly new light, after the exploration and discovery provided by the development. This and other musical forms, following a beautiful logic and structure yet allowing for a great range of creativity, are the hallmark and the legacy of the Classic period. It may be these qualities, the range of expression of human feelings, the phrase structures so similar to spoken language, and the perfection and balance of overall form, which make Classic music the vehicle it is for active concert readings.

The Romantic period was a reaction to the refinement of the Classic, and it carried everything from the Classic period to its extreme. It did grow out of the Classic, so there are many qualities in common, but Romantic music bursts the bounds of symmetry and refined expression.

Melodies and harmonies are more complex, more emotionally laden, often less clearly delineated. Phrases are longer and less balanced. You'll still hear a conversation, but it may seem that one character outweighs the others, and carries the conversation away in the passion of her argument. (Rachmaninoff's Piano Concerto #2, 1st movement, illustrates all of these qualities.) The same compositional forms are used for the internal structure of movements, but these, too, are redefined and pushed to the limits of their rules. Sometimes the themes of the exposition are so worked or examined in that first section, that the development and recapitulation aren't clearly defined. You may need to listen a number of times, before the sections become clear.

Hearing these sections is a pleasure, but it isn't necessary for your concert readings. Necessary to note are the changes in structure and message from the Baroque to the Classic, and the change in emotional charge and energy level between the Classic and Romantic. Both of the latter are used for active concert readings, but the heightened emotions and the move to less clarity of form will be factors in your choice of music for that reading.

Concerning the style and interpretation of Baroque, Classic and Romantic music, the performance you choose will make a tremendous difference. Each conductor decides the size of his/her orchestra, what ornamentation to use in Baroque music, (ornamentation was generally not written out, in the Baroque period, but was improvised by the performer), the tempo of performance, and the style of delivery. Baroque music will lose its exuberance, its ornamentation, its life, if played by a large orchestra and romantically interpreted, so here are some brief guidelines. Orchestral size: orchestras in the Baroque period were small, usually less than 20 players. This is because there were no public orchestras, no public concerts, only groups hired by churches and royalty for specific or private performances.

In the Classic period, orchestras got bigger, averaging 20-30 players, and in the Romantic, they were huge. Up until about 10 years ago, performers were still following the spirit of the Romantic period and playing all music, Baroque and Classic included, with large orchestras. There is a recent trend, however, toward recapturing the spirit of Baroque and Classic music by using smaller orchestras, ornamenting Baroque music appropriately, and using brighter tempi and dynamics. Some of the fine musicians leading this trend are Christopher Hogwood, John Eliot Gardiner, Trevor Pinnock, Roger Norrington, Gustav Leonhardt, Nikolaus Harnoncourt, Franz Bruggen, Ton Koopman, Sigiswald Kuijken, Simon Preston, and Derek Solomons. A few fine Baroque and Classic ensembles are playing without a conductor (as was the norm in those periods), and several of these are the Taverner Consort and Players, Cologne Musica Antiqua, and the Orpheus Chamber Orchestra. (I haven't heard Orpheus play Baroque music, but their Classic works are very fine indeed.) Selecting these stylistically accurate performances is especially important in Baroque music, since proper tempo, energy and ornamentation are crucial there. Once you've heard these performers, you'll be in love with the spirit you find there.

As a final word on stylistic differences, note that the overall evolution of musical genres, from one period to the next, mirrors the values and affects we saw in those periods. In the Baroque, the characteristics we see in art, architecture and music, are ornamentation, superfluity, and complexity of detail within an overall structure of sameness. Mirroring that microcosm are a huge number of genres and compositional forms, each specialized and detailed within itself, but together forming one ornamented tapestry. The Classic period, which sought balance, refinement and symmetry, discarded many of those Baroque forms, just as they discarded the superfluity of ornamentation, and created or refined that handful of forms which are now the backbone of our musical tradition: the symphony, concerto, overture, sonata, and most chamber music forms. The Romantic period retained the genres of the Classic, but expanded them in length and stature, reflecting the lofty ideals and growth of humanism that marks that period.

Who are some major composers of the Baroque, Classic and Romantic periods? For the Baroque, George Frideric Handel, Johann Sebastian Bach, Georg Philipp Telemann and Antonio Vivaldi; for the Classic, Wolfgang Amadeus Mozart, Ludwig van Beethoven, Franz Joseph Haydn and Gioacchino Rossini; and for the Romantic, Sergei Rachmaninoff, Robert Schumann, Cesar Franck, Franz Schubert, Peter Ilyich Tchaikovsky, Johannes Brahms, and Richard Wagner. (While I've listed Beethoven in the Classic period, he is thought of as both Classic and Romantic, a bridge between the two periods.) A few mnemonic sentences will help us remember them: "See if you can Handel, going Bach to the Baroque, to Telemann (tell a man), 'Viva Vivaldi' (long live Vivaldi)!" "Mozart sat in Class (Classic period), and saw that Beethoven was Haydn a Rossini's (rose-in-his) pocket." "A Rockman (Rachmaninoff) and a Shoeman (Schumann), talked Frankly (Franck), but Romantically over a dish of Schubert." And to include those last Romantic composers listed above: "A Shy Cow Skied (Tchaikovsky) past a Brahms bull, Waggin'er tail (Wagner)."

DEFINING TERMS AND DECODING RECORD JACKETS

Symphonies, concertos, concerti grossi, overtures,suites, and sonatas are some of the most widely used musical genres. These can be defined as belonging to two groups: works for large ensembles ("ensemble" means "group playing together"), such as the symphony orchestra; and chamber music", or works for small ensembles, like duets, trios, quartets, etc. Ensemble size will influence your selection of works to use in class, since size affects the overall dynamic and energy level of a piece. Large ensembles produce masses of sound which lend themselves to strong gestures and universal statements, while small ensembles are more intimate and personal. Symphonies, concertos, and overtures are all works for large ensemble. Suites and concerti grossi can be written for either large or chamber ensembles, and sonatas, duets, trios, and quartets are chamber music genres exclusively. Let me define each of these briefly for you.

A symphony is a work in four contrasting movements, written for the symphony orchestra. (The movements will be in contrasting tempos, modes and meters, and will probably contrast each other in overall dynamic level as well.) This genre developed in the Classic period, when orchestras were fairly small (20-30 players), and proved so popular that it now dominates the orchestral scene. Throughout the Romantic period we see an expansion of the symphony reflected in the size of the orchestra, which grew considerably, and in the length of the movements as well. Romantic symphonies commonly employ 80-100 players, and sometimes even more. Choruses sometimes join the orchestra (as in Beethoven's 9th Symphony, and Mahler's 2nd, 3rd, and 8th Symphonies) bringing total forces to hundreds of performers. (While these are still called symphonies, the vocal movements aren't appropriate for our work in SALT.) The length of each movement of the symphony grew from 5-10 minutes each, in the Classic period, to 20-30 minutes each, in late Romantic works. This evolution in size parallels the values and messages of the Classic and Romantic periods. It may affect your choice of concert music, since the smaller orchestras of the Classic period provide a lighter, bouncier sound than the large, heavy works of the Romantic. Again, listen, and feel for what you need for your concert readings.

Concertos are works for orchestra and soloist. They follow the same basic pattern of movements as the symphony, and orchestral size and movement length evolved from the Classic to Romantic periods in concerto composition just as in the symphony. The main difference between these genres is the soloist, featured in contrast with the larger ensemble. The conversational nature of concertos makes them well suited to active readings.

Concerti grossi (plural of concerto grosso) are works for a small group of soloists, highlighted within the main body of the orchestra. The concerto grosso was a very popular form in the Baroque period, but it fell out of favor with composers and was not used in the Classic and Romantic periods. I have listed concerti grossi as works for larger ensemble, but remember that a Baroque orchestra playing a concerto grosso would number less than 20 players. Concerti Grossi are delightful works for passive concert readings.

Overtures are one movement pieces, usually written to be played before an opera or ballet, to settle the audience down and prepare them for the evening's entertainment. They're short (usually 5-10 minutes long), and they contain a wide variety of moods and ideas in that one movement.

The suite, that genre written for both large and small ensembles, is a string of movements which are usually based on dance rhythms and meters. They're light, energetic, and full of contrasts. Both orchestral suites and solo suites are common.

The chamber music genres, duets, trios, quartets, quintets, sextets, etc., both define the number of players (2, 3, 4, etc.) and indicate generic form. All of these genres usually contain three or four contrasting movements, of similar form and length to those of the symphony and concerto.

The one puzzling term in chamber music genres may be the "sonata". The sonata can be a work for one instrument alone or for one instrument with accompaniment. Its name is the only thing unusual about it, as its movements follow the same pattern as those of the other genres we've discussed. Indeed, of the multi-movement forms we've seen today, only the suite and the overture diverge from that pattern of 3 or 4 movements, in contrasting tempos, modes, meters, and overall dynamic level.

Only the suite, the concerto, and the concerto grosso were around in the Baroque period; all the other genres we commonly hear performed and recorded, developed in the Classic period and were expanded in the Romantic. Almost any piece we choose from these genres will provide us with great variety, but we need to consider the ensemble size, the stylistic period, and the ever unique interactions of the elements of music, in choosing works for our concert readings.

And now to decipher a few record jackets or concert programs:

BEETHOVEN: PIANO SONATA #6, IN F DUR, OPUS 10, NO.2. Being Beethoven, it is a late Classic, early Romantic work. It will have the symmetry of classicism, but some of the fire, daring and exploration of the Romantic. As a sonata, it's a work for piano alone, in three or four contrasting movements. It is in a major mode (Dur), so you can expect the brighter qualities major provides. It is Beethoven's 6th piano sonata (Sonata #6). "Opus" is a chronological indication, meaning work or series number. Opus 10, is 10th in Beethoven's output, and we see by "No.2", that he intended this opus to be a series, of which this is the second work. "Beethoven's Piano Sonata #6" is enough information to identify this piece, but opus numbers are almost always given. They indicate where in the composer's output a work falls, and as you get to know that composer's works, this information allows you to follow the evolution of that artist's individual style.

MOZART: SYMPHONY #25, G MOLL, K.183 Mozart is the epitome of the Classic composer. His 25th symphony follows the Classic pattern of 4 contrasting movements, typical of that genre. The g minor key (moll) gives this symphony stormy overtones. Mozart didn't give his compositions opus numbers, but they were cataloged chronologically by L. von Kochel after Mozart's death. The "K" number is the chronological number assigned by Mr. Kochel. Kochel numbers are used for all of Mozart's works.

A few other composers declined to give opus numbers to their output, and catalogers have provided systems for these as well. There are BWV numbers for Bach, H. numbers for Haydn, D. numbers for Schubert, and two numbering systems for Vivaldi, F. and RV. My purpose here is not to list trivia, but to show you that these foreign looking codes are really simple ways to identify works, so that you can find the recordings or scores of works you hear and like. You needn't memorize the systems, but just note their existence.

You now have information on the elements and styles of the Baroque, Classic and Romantic music that we use for Suggestopedic concert readings. This knowledge may guide you, answering questions about how music affects us, clarifying which composers belong to each period, and decoding some common, puzzling terms. No article, however, can take the place of listening. The examples referred to in this article are available in record stores and public libraries. In addition, there are many good quality cassette tapes produced by a number of SALT researchers and training centers. Listen critically, exploring the elements and listening for the stylistic qualities discussed here.

If more help is desired, you may contact the author for further recommendations.

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Die Definition und Entmystifizierung der Musik des Barocks, und des klassischen und romantischen Stils.

Dieser Artikel analysiert die Musik, die SALT verwendet. Das Ziel des Artikels ist es, dem Leser einen Hintergrund ueber die Grundbestandteile und den Stil der barocken, klassischen und romantischen Musik zu erlaeutern und zu erklaren. Die Bestandteile der Musik werden behandelt, vor allem in Blick auf die Art und Weise, wie diese Merkmale der Musik den Zuhoerer beeinflussen. Darauf hin wird dieses Wissen benutzt, um in der SALT-Klasse die Einfuehrung der Musik entsprechend waehlen zu koennen. Der Barock,

klassischen und romantischen Stils wird definiert und beide werden miteinander verglichen, damit die Untershiede in der Geschichte, Stil und Ausbau deutlich gemacht werden. Das musikalische Genre und die ueblichen Termologie werden dabei auch definiert.

La definición y demistificación de la música barroca, clásica y romántica

Este artículo analiza la música usada en SALT, con el objeto de proveer el lector con un entendimiento básico de los elementos y estilos de la música barroca, clásica, y romántica. Los elementos básicos de la música fueron explorados, notando como estas característicos afectan al que escucha y como este conocimiento puede ser usada en la elección de música apropriado para aplicación en clases de SALT. Se define y compara la música barroca, clásica y romántica hasta que está claro sus diferencias históricas, estructurales y estilisticas. Los géneros mayores de la música y términos comunes fueron definido.

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Retraining Cognitive Abilities: A Report on Thinking and Memory Improvement Combining Suggestopedia with Cognitive Behavior Modification (CBM) for Ages 10 - 55.

Part II: A Longitudinal Study

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Abstract This study is Part II, or Experiment II to follow the previously published article in JSALT, Retraining Cognitive Abilities: A Report on Thinking and Memory Improvement Combining Suggetopedia with Cognitive Behavior Modification (CBM) for ages 10-55. Experiment II reports longitudinal 1 - 3 year posttest data for subjects ranging in a broad age range from 10 to 55, and varying in number from 31 to 40. Six subtests measuring Simultaneous and Sequential processing (Kaufman & Kaufman, 1983) were administered using the Detroit Tests of Learning Aptitude-1 (Baker & Leland, 1935; 1967). Analyses of Means and Reported Measures indicated that with this longitudinal study, the treatment gains were maintained over this period of time. Included are specific case histories of the subjects in each of several categories that ranged from gifted, high average achieving, low average, learning disabled, and mentally handicapped. The discussion includes caveats for educators, and a conclusion.

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This article reports Experiment II, or the longitudinal one to three year posttesting of Experiment I, which was published in the last issue of SALT (*14* (1), Spring 1989). Longitudinal data are often difficult to obtain. Not only are individuals difficult to locate years past the time of a treatment project, but many are unwilling to go through a third testing procedure for scientific attainment. Unless the individual can see pertinent information relevant to their own needs, follow-up posttesting can be difficult, if not impossible to accomplish. Some of the individuals reviewed in this article received the treatment as much as eight years ago. The follow-up case histories have therefore had development time.

This study explored how a specific application of information processing theory was put into practice using Cognitive Behavior Modification (CBM) methods (Meichenbaum, D., 1977), and Suggestopedia methods (Lozanov, G., 1978), by applying Kaufman & Kaufman's (1983) Sequential-Simultaneous Dichotomy, within the Guilford (1967) Structure of Intellect Model. The previous article went into theoretical detail describing the operational form of this construct.

Experiment II was conducted to determine if gains achieved in a three week application were to be maintained longitudinally. Experiment I had subjects ranging in ages from 10 to 24, with one adult age 55, and varying in number from 31 to 40.

Six subtests measuring simultaneous and sequential components were given from the Detroit Tests of Learning Aptitude-1. (DTLA-1) (Baker, H. & Leland, B., 1935; 1967). This particular battery was administered before the revision of these tests was available (DTLA-2, Hammill, D., 1985). These subtests were selected according to the information processing theory construct (Johnson & Myklebust, 1967), Woodcock's (1978) level of processing theory, and to support Kaufman & Kaufman's (1983) Sequential-Simultaneous Dichotomy (see Figure 1).

Through standardized testing, information processing deficiencies and weaknesses along this hierarchy line (see Figure 1) can be identified and pinpointed for corrective purposes.

The research question was, can specific cognitive abilities be isolated and retrained, with the results maintaining over a period of time?

METHOD

Subjects For Experiment II:

Experiment II, consisted of a group of 40 experimental subjects, ages 10 to 24, with one adult age 55. They ranged from gifted to severe deficit classifications, including low average, learning disabled, and mentally deficient. They returned for testing for a one to three year longitudinal study to determine whether gains achieved in an initial three week training period had permanent effects. These individuals voluntarily enrolled in a three week program (1 hr. 15 minutes per day), to improve memory and information processing. Fifteen of these students were classified by public and private schools as learning disabled, two were classified as mentally deficient, and three were classified as gifted. The remaining nineteen students ranged through low average, average, and high average in school. The forty students were primarily from a middle income environment. This experiment did not have a control group.

Fig. 1. Tests that measure the information processing hierarchy theory*

Level of Processing	Successive	Simultaneous
Conceptual	DTLA #18 Oral Directions	
Symbolic	DTLA #16 Letter Sequences	DTLA #16 Letter Sequences
Memory	DTLA #13 Auditory Memory for Sentences DTLA #06 Auditory Memory for Unrelated Words	
Perceptual		DTLA #09 Visual Memory for Figures DTLA #12 Visual Memory for Designs

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*Based on Johnson and Myklebust's (1967) information processing hierarchy theory, and adapted from Woodcock's (1978) level of processing theory. Tests are from DTLA-1: Detroit Tests of Learning Aptitude, Baker, H & Leland, B. (1935, 1967).

The purpose of the study was to analyze the effects of the treatment longitudinally, determining whether the treatment results were maintained over a period of time, within a wide range in age and ability levels. Follow-up delayed posttesting took place one to three years following the treatment.

Class Grouping Procedure for Experiment II

The forty subjects were assigned in small groups of two to four individuals according to age and entry ability, which is determined in a pretreatment screening and testing interview. The subjects were pretested using three subtests from the Detroit Tests of Learning Aptitude (DTLA-1) (Baker & Leland, 1935; 1967). These were: No. 06 (Memory For Unrelated Word Sequences), No. 16 (Memory For Letter Sequences), and No. 18 (Following Oral Directions). The age compatible individuals were placed into groups according to their scores on these tests, along with their perceived personal capability aspects, as evidenced by their school's report card grades.

Materials For Experiment II

Six subtests were selected from the DTLA-1, (Baker & Leland, 1935; 1967), a testing battery designed to measure perceptual processing in visual and auditory sequential memory and integration, and visual simultaneous memory. These subtests were administered pretreatment, and posttreatment following the three weeks of instruction. Four subtests were selected to measure Successive Processing, and three subtests were selected to measure Simultaneous Processing (Kaufman & Kaufman, 1983). These authors define Successive Processing as the ability to handle stimuli in sequential or stepwise fashion.

Simultaneous Processing includes the input of stimuli with its simultaneous synthesis into a gestalt formation. The four subtests measuring Successive Processing were: No. 06 (Memory For Unrelated Word Sequences); No. 13 (Auditory Memory For Sentences); No. 16 (Memory For Letter Sequences); and No. 18 (Following Oral Directions). The three subtests measuring Simultaneous Processing were: No. 09 (Visual Memory For Figures); No. 16 (Memory for Letter Sequences); and No. 12 (Visual Memory For Spatial Designs). At the conclusion of the three week treatment period, posttesting procedures identical to the pretreatment testing were administered. Identical longitudinal posttesting was then administered to the forty, thirty-four, and thirty-one subjects one to three years following the treatment period.

Additional longitudinal standardized intelligence and aptitude testing was administered in as many cases as was possible, to cross validate the mental age scores measured by the DTLA-1. These intelligence and aptitude tests were: DTLA-2 (Hammill, 1985), Short Form Test of Academic Aptitude (Sullivan, E.T., Clark, W.W., & Tiegs, E. W., 1970), Slosson Intelligence Test (Slosson, R. L., 1982), the Wechsler Intellignce Scale for Children, (Wechsler, D., 1949), and the Woodcock-Johnson Psycho-Educational Battery (Woodcock, R. W. & Johnson, M. B., 1977). Pretest and posttest scores were also correlated with private and public school testing when available.

The DTLA-1 interprets intelligence scores in terms of mental age, and using median point scores. Intelligence was derived by dividing chronological age into mental age scores.

Training Procedure for Experiment II

The treatment procedure, and the adjunct media applications, were the same for Experiment II, as for Experiment I.

This information on training application was published in the last issue of SALT (*14* (1)). This included an abilities and academic outline, how Suggestopedia and Cognitive Behavior Modification techniques were applied according to lesson plan formats.

Results

Table 1 illustrates the Means and Reported Measures for six Dependent Variables for Experiment II. Four subtests were administered to measure successive processing (Kaufman & Kaufman, 1983), three of them to 40 individuals, and the fourth subtest to 31 individuals. Two additional subtests were administered to measure simultaneous processing, one to 31 and the other to 34 subjects. All six posttests were significant at the <.01 level. All of the scores were converted to raw scores for comparative purposes. Referring to the patterns of the pretests, posttests, and delayed (1-3 yr.) posttests means, it was concluded that significant gains were made from the pretest to the immediate posttest. Gains held steady from immediate posts to delayed (1-3 yr.) posttests. This indicates that simultaneous and successive processing improvement was maintained over a period of time.

On DTLA subtest No. 18 (Following Oral Directions), there was a slight regression from posttest to delayed (1-3 year) posttest. The delayed post score was significant at the p<.01 level, thereby showing permanent retention of

Table 1. Raw Means and Reported Measures for 6 Dependent Variables for One to Three Year Longitudinal Posttesting.

DTLA-1 Subtest		N	Max	Pre	Post	1-3 Yr. Post	Wilks Lambda	F	df
Successive Processing									
Aud. Mem. Words	06	40	69	50.58	58.90	59.13	.19	81.0*	2,38
Vis. Mem. Letters	16	40	67	45.55	54.40	54.68	.29	46.8*	2,38
Oral Directions (Vis./Aud. Integration)	18	40	40	15.38	29.13	27.78	.17	95.5*	2,38
Aud. Memory Sentences	13	31	123	69.03	89.06	89.39	.22	52.1*	2,29
Simultaneous Processing									
Vis. Mem. Figures	09	31	65	50.39	62.87	61.94	.17	72.5*	2,29
Vis. Mem. Designs	12	34	44	34.85	42.12	42.50	.34	31.7*	2,32

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* $p < .01$

learning strategies leading to improved auditory-visual integration.

Two subtests measuring simultaneous processing (Visual Memory for Figures, DTLA No. 9, and Visual Designs, DTLA No. 12) were administered to 31 and 34 subjects respectively. Both of the subtests scores were significant at the p<.01 level.

Case Histories of the Longitudinal Data

It was my intention to review the best and the least successful in each of the categories: gifted, high average functioning, below average functioning, learning disabled, and mentally handicapped. Of the forty subjects, all are either attending school or were successfully employed. Most of the subjects represent success stories following the eight years of treatment. Therefore, typical cases in each category have been reviewed, as it was not possible to find unsuccessful studies.

The gifted

B. H. took the class when he was age 12.7, a sixth grader in the public schools. His pre-median mental age score on the DTLA-1 was 13.6. He was in the public school gifted program. His post-median mental age was 15.9, and one year posttest was 16.0. For ninth grade graduation, he was awarded as the student having the most A's during junior high school. He is currently a freshman majoring in business at the University of Kansas. He had a 3.4 GPA first semester, while carrying 16 hours, which included statistics and calculus classes.

C. L. E. took the treatment at age 14.11, with a median mental age of 15.0 on the DTLA-1. Her posttest score three weeks later was 17.8 median mental age. Her one year posttest score was 17.0 Following the treatment, she was classified as gifted in senior high public school, scoring an I.Q. of 151 on the WISC-R (Wechsler, 1949). School officials, being skeptical of this high score, retested her on two other measures, verifying this I.Q. score. This examiner did a three year posttest with the SFTAA (Sullivan, Clark & Tiegs, 1970), in which she scored a 145 I.Q. While in high school she was elected as International Key Club Governor by student Key Club Kiwanians. She graduated from the University of Kansas in 3 1/2 years with a 3.0 GPA, in political science and languages. She is currently employed as an administrative assistant in Personnel in the White House in Washington D.C.

High average functioning

C. J. E. was tested for gifted by the public schools at age 12, and did not qualify, with a score of 93% composite on the WISC-R (Wechsler, 1949). The gifted school teacher described her as high average in ability. She had the treatment when she was age 13.3 with a precourse median mental age of 14.9, and had 17.0 median mental age on the posttest. On the two year posttest, at age 15, her median mental age was 18.0. She is currently 19 years of age, and has finished one year of college at Cal. State Burbank, having been on the Dean's Honor Roll with a 3.9 GPA. She is also actively persuing an acting career in televison and motion pictures.

The low average functioning (C to D averages) in high school

R. L. S. Junior high school counselors told his parents that he didn't have the capabilities necessary to attend college. He had difficulties with reading, spelling and math. He then received this treatment twice, the first time when he was age 15.7, the second time at age 16.7. His pretest DTLA-1 median mental age was 10.6, his posttest median mental age was 15.0. His second treatment pretest median mental age held previous gains made at 15.0 one year later. His second posttest median mental age was 18.3 at age 16.7. He attended the University of Kansas without any tutoring or special assistance, received two scholarships, and managed a local retail store. He graduated with a 3.4 GPA in communications, and is working in sales for a pharmaceutical company.

M. E. also was advised by high school counselors that he was not college material, as he was receiving C's and D's in high school math. He was tracked non-college preparatory. He underwent the treatment at age 17.2, with a median mental age of 11.6. Following the treatment, his median mental age was 17.0. Posttest scores three years later indicated his median mental age was 18.0, and by then he had received a B in college calculus. He graduated from the University of Kansas in mechanical engineering with a 3.1 GPA, and is currently employed as an engineer in McDonald Douglas Aircraft space division, at age 25.

D. O. took the treatment at age 14.7, and had a median mental age of 12.3. In the public schools, he was a low achiever. His lowest pretest score of 10.0 was on the DTLA-1 subtest #18, Following Oral Directions sequences.

The three week posttest score on #18 was 16.0, and this score held on the one year posttest. His posttest median mental age was 17.0, at age 15.7, and two year posttest was also 17.0 at age 17. He attended technical school, and is currently employed as head maintenance supervisor for operative machinery at Flexell Plastics, at age 25. He also serves as a trouble shooter in machine operations.

The learning disabled

R. S. entered the program at age 11.5, with a median mental age of 9.3. He had been a Rh factor infant, and received a total blood transfusion at birth. His pretest auditory processing functioning was at median mental age 5.0 and 6.0. His memory for visual objects was 9.0 median mental age. His median mental age at the end of the first treatment was 11.9. A one year posttest score was 11.3 median mental age. He underwent treatment a second time, and posttested with a median mental age of 16.0, or 6.7 years mental age gains. He is currently a freshman at Oklahoma State University, receiving average grades, without learning disability school assistance.

L. N. entered the treatment twice. The first time at age 13, and again at age 16. Her pretest median mental age score was 10.0, and following the treatment the posttest score was a median mental age of 14.6. Her pre scores ranged from median mental age 9.0 for auditory span for unrelated words, 9.3 for memory for objects, 7.0 for verbal fluency, and 8.0 for spatial designs. Her pretest I.Q. as measured by Slossen was 67. The Short Form Academic Aptitude (SFTAA) Sullivan, E., Clark, W., & Tiegs, E., 1970) pretest indicated her I.Q. at 71. This I.Q. score was confirmed by the public schools. She had qualified as severely learning disabled, within that same

I.Q. range. Her mother, being an elementary teacher, worked rigorously with the program's manual and tapes system following the treatment. Her one year posttest median mental age was 15.9, up from the posttested median mental age 14.6. Following the second treatment, she had a 17.0 median mental age score. Her posttest I.Q. measured by the DTLA-2, was 113 (up 46 points from the Slosson Pretest score of 67), posttest on the SFTAA was 95, up 24 points from the pretest score on the SFTAA of 71. After L. N.'s teachers noticed her improvement in school, this researcher was asked to present a teacher's inservice session. This method and materials are currently being field tested in that school district with eight remedial reading students, and had been attempted with a regular fifth grade class, which dropped the field testing when the teacher became seriously ill. She is a sophomore at William Jewell College in Kansas City, with a 2.4 GPA. For her freshman year, she attended Kansas State University, where without any L.D. or outside assistance, she had a 2.2 GPA. For several summers she did clerical work at a Kansas City accounting firm.

M. N. was learning disabled with severe auditory processing, encoding, and spatial dysfunctions. He received the treatment twice, the first when he was 13.5 years of age, and again at age 15. His first course pre-median mental age was 11.6, his posttest median mental age 15.0, and his one year posttest was 16.9. His first course entry level of auditory processing was 7.6 median mental age for auditory attention span for sentences, and posttested at 10.9 median mental age, with second posttest one year later, at 10.3 median mental age. His second course posttest was 13.0 median mental age. He attended a private high school, where he graduated with a 3.6 GPA. He also plays tennis, which requires spatial and hand-eye coordination. He now attends college as a freshman, with a 3.2 GPA.

G. M. took the class twice, once at age 12.0, and again at age 15.0. She was in seventh grade, reading at the fourth grade level. G. and her mother traveled from Florida, where G. attended a school for severely learning disabled. They came to the Midwest to spend a month receiving the initial treatment. Following the first treatment, she went from low average 17% on visual memory and perception to high average, or 73% on the Woodcock & Johnson (1977) Psycho-Educational Battery. She returned to the Learning Disabilities private school in Florida, who confirmed the gains with their testing. They asked this researcher to speak to the teachers at their school about this method. Following a second treatment of this program in Florida, she was terminated from the Learning Disabilities private school and was able, with tutorial help, to maintain a 2.4 GPA at a public high school.

Mentally Handicapped

C. D. took this treatment three times, at ages 14, 15 and 16. She was placed in special education in the public schools for the mentally handicapped. The first pretest was when she was in eighth grade, and her median mental age scores on the DTLA-1 (Baker & Leland, 1935, 1967) ranged from 7.6 median mental age on spatial designs, to 8.0 median mental age on auditory attention span for unrelated words, and 9.0 median mental age for memory for alphabet letters. Her pretest score of 10.9 mental age on oral directions was noted as unusually high for one classified as mentally handicapped, even though she was age 14. She scored 0% on both memory and perceptual speed clusters on the Woodcock & Johnson Psycho-Educational

Battery (1977). Her DTLA pretest I.Q. was 72. Following the third class her I.Q. rose to 107. Her spatial design scores rose from 5% (on the second course pretest) to 84% (on the third posttest) on the DTLA-2 (Hammill, 1985). The resource room also posttested following the third session, and the raw scores matched the 3 year posttests with the treatment. They found her I.Q. to be 97, well within normal ranges, but had not changed her mentally handicapped status. C.D. continues to feel most comfortable socially in the mentally handicapped class in which she was enrolled. At this writing, her parents have been encouraged to have her retested, and possibly reclassified to learning disabled. She will graduate from high school this year. She drives a car, and participates in horse shows which requires following sequences and spatial patterns, and has worked part time as a nurses aide.

S. K. was classified as mentally handicapped in the special education classes in the public schools. She received this treatment at age 22, while living at home and working as a maid at a local motel. On pretest auditory processing, she scored a mental age of 6.6 DTLA-1 (Baker & Leland 1935, 1967) on memory for unrelated words, 9.0 median mental age on letter sequences, 9.0 on oral directions, and 12.3 on spatial designs. She received the treatment twice, one year following the other. Her second course pretest scores maintained the first posttest scores, following one year interim. Her I.Q. on the first pretest on the SFTAA was 77, her first posttest 87, and her second posttest 99. At this writing she is attending modeling school, and is employed as an art finisher for a ceramics artist. She lives independently in an apartment, drives her own car, and according to her parents, is nearly self-supporting.

Discussion

Learners, either on the job or in school, have inadequate functioning ability levels that can be retrained with systematic instruction. This includes implementing the Sequential-Simultaneous Dichotomy (Kaufman & Kaufman, 1983), within the Guilford (1967) Structure Of Intellect model, with Suggestopedia (Lozanov, 1978) and Cognitive Behavior Modification (CBM) (Meichenbaum, D, 1977) learning techniques.

Specific cognitive deficiencies can be isolated through testing with the individual (Meeker, 1969). Detroit Tests of Learning Aptitude (DTLA-1; Baker H., & Leland, B, 1935, 1967) can measure specific areas of cognitive functioning in the individual in a progressive fashion. Information processing deficiencies and weaknesses can be identified and pinpointed for corrective purposes along the entire processing hierarchy line (see Figure 1).

Auditory and visual incoming stimuli enter the perceptual level and proceed up the level of processing model through memory and symbolic levels to the conceptual level (see Figure 1). According to Meeker (1969), and Kirby and Das (1977), a combination of both successive and simultaneous processing is related to conceptualization that leads to academic achievement.

An information processing ability deficiency can be described as a weakness along the level of a processing hierarchy framework line. Deficits along the lower part of the processing line, including inadequate short-term memory encoding capabilities, interfere with conceptualization at a higher level (Johnson & Myklebust, 1967). Information is first perceived, then passes through imagery, symbolization, and finally enters conceptualization. Therefore, exercises in imagery, along with encoding control strategy training, become an underlying foundation component in the development of comprehension. If a processing deficiency occurs within either the simultaneous or successive system, the individual will compensate for the deficient system (Kirby & Das, 1977). As a result, a rigidity of thought patterns which can indicate a difficulty with cognitive flexibility (Meeker, 1969; Cordoni, 1980), will occur.

An important part of the CBM procedure used in this study included the concept of modeling, using both peers and puppets (Erland, 1980). Bandura's (1971) four components of the modeling paradigm which govern modeling phenomena are: 1) attentional processes are channeled by influential characteristics of the model; 2) therefore, information relayed is more likely to be retained into memory representations; 3) information will be remembered if it is integrated into actual performance; and 4) it will be remembered and acted upon if the factors involved are motivational in nature.

The overt and covert CBM verbalization strategies outlined by Meichenbaum (1977) are an important component. The gradual removal of cues and prompts, so that the learner becomes self-monitoring, is part of facilitating the generalization to academics (Sloan, C., 1980; Harris, K., 1982).

One of the basic underlying principles of CBM is overt and covert rehearsal which forms the framework of metacognition. Spear (1978) affirms that continuous repetition until the retention test is helpful for short-term memory recall. A way to insure a depth of information processing is to increase the number of repetitions. As the degree of learning verbalized materials increases, the chances of forgetting the materials decreases.

Frequent repetition also facilitates a rapid change of psychological and physiological structure (Luria, 1966; Lynch, 1984). The solid framework of overlearning information implies firmer generalization effects (Spear, 1978).

Working memory functions as the work space for reasoning and language comprehension (Howard, 1983). Elaborative rehearsal and encoding are closely related. The stimulus itself is not stored, but only some encoding or representation of it (Bower, 1972).

Elaborative rehearsal can strengthen working memory, and decay can be eliminated in spite of the addition of interference (Howard, 1983). If the stimulus is masked by other events, the initial stimulus can be recalled by the strengthened working memory. This strengthened memory storage can range from controlled to automatic thinking ability (Howard, 1983). Controlled processing uses a limited capacity system. Automatic processing can hold a larger array of information.

Memory span capacity and length can be increased through elaborative rehearsal (Craik & Lockhart, 1972), although Miller (1956) proposes that the working memory is limited in capacity size. This capacity size varies from individual to individual, and the working memory holds chunks or units of seven plus or minus two, rehearsal can increase the memory span and length beyond these limitations. Allport (1980) suggests that there are no limitations to sensory input, or the ability to filter information. This led some researchers to rely on top-down or contextual approaches with the processing of information (Gardner, 1985), rather than the bottom-up design of Woodcock (1978).

Kahneman and Henik (1978), discussing a group processing model for tachistoscopically exposed visual letters and digits, state that memory storage capacity for grouped items such as visual letter and digit spans vary according to group size, length, and exposure conditions, along with homogeneous and cueing factors, and that the average visual memory span length is four items. Auditory short-term memory also has capacity limitations, which vary from individual to individual. The average auditory short-term memory span length is somewhere between four and five items, depending upon spatial orientation, sound quality, and loudness of the stimuli (Massaro, 1978).

The depth of processing is a crucial component of information processing. According to Rumelhart (1978), there are six interactive parallel levels of visual memory processing, beginning with a feature level and going up to the syntactic and semantic level. The perceptual levels interrelate, and each level depends on the underlying foundation level. Reading comprehension begins at the feature level of words, progresses through the letter level, the letter cluster level, the lexical level, and the syntactic level, up to the highest semantic level (Rumelhart, 1978). Memory processing interference at any of the levels will necessarily inhibit conceptualization at the semantic level. Therefore, if the underlying levels are correctly perceived and processed, then understanding or conceptualization results (Johnson & Myklebust, 1967; Craik & Lockhart, 1972). Auditory events also must be processed sequentially, and the significance of a particular word or event is established in relation to the preceding one (Spear, 1978).

The ultimate goal is for an individual to be able to process large amounts of information, and to mentally organize many systems and relationships into a conceptual framework of integration. According to Jackson & McClelland (1975) and Rumelhart (1978), good readers are capable of integrating more perceived elements into an organized conceptual representation. Sternberg (1966) states that individuals must search through their working memory using either high speed serial or parallel scanning methods.

It is important that successful training procedures generalize outside the training sessions. Harris (1982) listed fifteen suggestions, compiled from several authorities, that affect durability and generalization of CBM training. One suggestion was that generalization is more likely to occur if the learner gains increased self-esteem and confidence as a result of the training, and attributes the observed changes to the degree of their own efforts.

Follow-up studies showed that these abilities were maintained. Most subjects continued to practice on their own the techniques learned in the treatment program. Substantial gains were evident in the subtests Memory for Unrelated Words (# 06), and Following Oral Directions (# 18), indicating an increased memory span capacity and strength. Subtest # 18 measured the ability to follow a progressively complicated series of oral directions on paper using both auditory and visual integration. The significant improvement on these subtests indicated that the learners were covertly using the memory and thinking encoding strategies learned in the training procedures.

The fact that other standardized tests were used to cross correlate and validate the one to three year posttest scores, was confirmation of the gains made. These other tests were administered not only by this examiner, but by other specialists in both private and public schools.

Although many motivational teaching systems exist, it is believed that the substantial gains and improvement evidenced in this study were not significantly attributable to motivational improvement. It may have been a contributing factor, in accordance with Bandura's Social Learning Theory (1971). In this study, both students and their parents reported that the overlearning elaborative rehearsal system contributed to a generalized use of the metacognitive, self-regulatory trained skills. Of the fifteen learning disabled subjects retested longitudinally in Experiment II, eleven went on to college, with the remaining four still attending in high school. Now the learning disabled subjects are maintaining average to above average grades, and of the eleven, three have graduated from a universities, two with honors, and all without special learning disability class assistance.

Caveats:

Creative applications of CBM are not a panacea in all classroom or on the job learning situations. There are several pragmatic drawbacks in using drilling methods in a classroom or work environment. These are some of the problems that were observed and adapted to with the development of this program:

I. Overworked and heavily scheduled classroom teachers lack the time, energy, and commitment to implement individualized, intensive drilling, and instruction of thinking skills. Classroom repetitive drilling could possibly be implemented by using supplemental media materials, such as computer programs, and audio and visual programs. Classroom teachers would need inservice training, to show the benefits and validity of allocating valuable class time in teaching a new method that they are not familiar with.

2. Daily classroom schedules or on-the-job work schedules lack both time allotment and flexibility to include daily drilling procedures that would improve thinking capabilities. It is difficult to convince administrators and managers that the increased benefits are worth the time allocation and monetary investment.

3. Most classroom or work environments would not be conducive to novel or creative applications, unless the applications were a part of carefully prescribed video and audio materials. To implement these applications, facilitator training sessions would be required.

4. Drilling procedures would need to be highly structured and administered along careful guidelines. Haphazard implementation would negate desired effects.

5. Many individuals are comfortable at their present performance level and cannot, or do not, perceive the need for self-improvement. The decision to receive the training may best be made by the administrator as well as the individual.

6. The training requires follow-through and self discipline. Since many individuals lack these traits, administrators and managers would need to implement a reward and goal achievement plan.

7. Since almost everyone would benefit from memory and thinking improvement, it would be difficult to determine who would receive the training first, either in schools or in business.

8. Carefully administered and interpreted individualized evaluative testing would be necessary to monitor and measure gains made by the learner. Trained practitioners and specialists would be required.

Conclusion

Additional study is needed to determine if the positive results obtained in a small, carefully controlled environment can be successfully reproduced in conventional classroom settings, in business environments, and across a range of populations. It should be emphasized that the treatment should be matched to the needs of the learner. Individualized testing would be necessary to determine and monitor these needs, until any particular system can be implemented widely.

New teaching concepts and methods incorporating Cognitive Behavior Modification and Suggestopedia techniques in retraining cognitive abilities need to be examined for implementation in schools and in the work place. Many individuals are desirous of ways of self improvement. Parents, school and business administrators, and executive management, in order to counterbalance increasing pressures for higher achievement and productivity, need to be open to new and efficient programs that achieve and maintain results.

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Die Weiterbildung der Erkennungsfaehigkeit: Ein Bericht ueber die Verbesserung des Denkens und der Erinnerungskraft -- Die Verbindung der Suggestionstheorie zur Erkennungs-Verhaltungsmodifikation, zur Anwendung auf Menschen im Alter von 10 bis 55 Jahre.

Zweiter Teil: langfristige Forschung.

Dieser Bericht ist Teil II, oder der zweite Versuch der den vorigen Artikel, "Die Weiterbildung des Erkennungsfaehigkeit" (Siehe oben), der in SALT herausgegeben wurde, folgt. Der zweite Teil dieses Versuchs macht Angaben ueber die Ergebnisse von den Nachpruefungen, die von den Versuchspersonen ein bis drei Jahre spaeter gemacht worden sind. Die Teilnehmer waren im Alter von 10 bis 55 Jahren; die Gruppen zaehlten von 31 bis 40. Nach der Detroit-Lernund Eignungspruefung (von Baker und Leland 1935; 1967) sind sechs kleinere Pruefungen benutzt worden, die den gleichzeitigen und reihenfolgenden Denkprozess vermessen (Kaufman und Kaufman, 1983). Die Analyse der Mittelwerte und Angaben dieser langfristigen Studiens hat bewiesen, dass die Ergebnisse der Therapie ueber laengere Zeit erhalten worden sind. Genauere Berichte ueber die Teilnehmer vershiedener Gruppen -- von Begabten, Hochbegabten, durchschnittlich Begabten, und lern- und geistigbehinderten Menschen -- sind eingeschlossen. Der

Artikel beinhaltet Hinweise fuer Paedagogen und eine Schlussfolgerung.

El re-entrenamiento de abilidades cognoscitivos: un reporte de pensamiento y mejoramiento de memória que combina Sugestopedia y la modificación de comportamiento cognoscitivo para personas de 10 a 55 años de edad

Parte II: Un estudio longitudinal

Este estudio es Parte II o Experimento II a seguir un articulo publicado antes en SALT; El retenimiento de abilidades cognoscitivos: un reporte de pensamiento y mejoramiento de memória que combina Sugestopedia y la modificación del comportamiento cognoscitivo para personas de 10 a 55 años de edad. Experimente II reporta data longitudinal de los "posttests" de 1 a 3 años para sujetos de un recorrido de edad muy ancho - 10 a 55 años, y variante en número de 31 a 40. Seis "subtests" mediendo elaboración sumultáneo y ordenada (Kaufman y Kaufman, 1983) fueron administrados usando los Exámenes de Aptitud - 1 de Aprendizaje de Detroit (Baker y Leland, 1935, 1967). Análisis de Medios y Medidas Reportados indicada que con este estudio longitudinal, las ganancias del tratamiento fueron mantendidas sobre este período de tiempo. Incluso hay histórias específicas de los sujetos en cada de los categórias variandos que recorre de talentoso, realización alto-promedio, bajo-promedio, aprendizaje inhabilitado, y retardado. La discusión incluye advertencias para educadores y una conclusión.

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"Tell the Juggler"™
A Gameshow Metaphor for Teaching the IBM-PC and its Assembly Language

Peter L. Ginn

and

Ann R. Ginn

ABSTRACT. At the level of complexity of a TV gameshow this metaphor teaches easily a normally very difficult computer language and it also demonstrates how a computer works. It provides a pleasant (fun, failure-free), hassle-less (don't even have to know how to turn a computer on, let alone use a keyboard), small budget (no big hardware investment to be made or to become out of date), low tech (can be done in any classroom) environment. The objective of the whole metaphor is not to send anyone out of the room at class's end puzzled, perplexed, frustrated, or left-behind. To date, the two 3 credit hour courses in IBM PC Assembly language at Brazosport College Texas taught this way have shown remarkable results.

* * * * * * * * *

Each class is conducted with an introductory explanation by posters and reading to music, followed by

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™ Peter and Ann Ginn

role playing activity by the complete class. The special props needed fit in a small case. The class needs a cassette player, a home video camera & tripod, 2 easels, a flipchart, small table, and plenty of wall space for posters. Also, there should be easy access to the front of the class for all of the students and there needs to be an unobstructed activity area at the front of the class. During the first class the Gameshow TV Studio is described, the cast introduced with posters, words, and background music. The first 17 instructions are explained by graphic posters. Then the class becomes cast and audience of "Tell the Juggler." By metaphorical example several short games (programs) are played (written, loaded and run). The second, third, and fourth classes then build on this base with more rules ("instructions") being introduced with each class. The level of technical complexity of the games also increases with each class. All games are genuine Assembly code. At the end of the first class any student will be able to describe how the IBM PC's microprocessor works within the metaphorical gameshow context. In the 4 classes together 41 concepts and 50-plus syntactically correct Assembly language instructions are taught. Each game is used later in the course's labs as familiar material when the students go one-on-one with real PC's.

OVERVIEW

This is a gameshow of audience participation and individual contestant skill. A team of volunteers is organized by the contestant/teacher. He gives each member of the team a card to display at chest height, each card bearing a different one-word instruction. Then the teams with each member in proper order are placed in the audience. Then, one by one and in correct turn, they hold aloft their encoded instructions to the Gameshow cast. The cast in their turn perform, in clear view of the audience, each of the instructions causing certain things to occur on, in front, and above the stage. An individual game concludes when the final instruction from a particular team has been performed. An individual game may or may not include having created a pattern on the Rainbow Pixelator display above the stage, or having sounded the klaxon beeper horn.

THE CAST AND CREW

The gameshow has a regular full time cast, some part-time "ghost" extras, and a "ghost" technical crew. The full time cast consists of the host, the hostess, four Chinese jugglers, a performing dog, four usherettes, four flood light operators, a decoding expert, and an illusionist. The cast, extras, and crew will be introduced after the facilities have been described.

THE FACILITIES

The television studio in which the game is played is a converted theater. The theater has banks of seats for the audience. Each bank is separately distinguishable from the other banks. There is an editor's desk and an assembly area before the stage. This is where a contestant prepares his "game" and can brief and organize his team before they are placed back in the audience. The stage itself has two podiums, a frustum, and a trap door. One podium is for the four Chinese Jugglers. The other podium is shared by the decoding expert and the game's hostess. There is an easel and flipchart on the second podium for the decoding expert to use. The frustum is for the performing dog. As mentioned previously the stage has a trapdoor off-center at the front of the stage. It is through this trapdoor that the illusionist appears and disappears ferrying messages from a lectern in front of the stage to the cast and from the cast to a Pixelator above the stage. The four usherettes and the four flood lights with their operators are present on runways either side of the stage that project out toward the audience. Above the stage is the rainbow pixelator display containing 128,000 rainbow bulbs in 200 rows of 640 bulbs each. Directly in front of the stage is a waist high lectern upon which are arranged 88 spring-loaded toggle switches. The switches are individually distinguished with letters of the alphabet, numerals, punctuation, and short acronyms. The audience has free and direct access to the lectern.

The theater has several boxes on either side of the stage. The boxes are visible to the stage and to the audience. Each box has a door in the rear through which access to the outside world is made. The extras are seated in the boxes. As temporary adjuncts to the show, the extras have been briefed and know exactly what to do when.

The game umpire and the technical crew (except for a cameraman and his camera and the producer/director) all sit in the high balcony, and consequently cannot be seen by the audience. The last item in the theater that has to be mentioned is the klaxon beeper horn. It is audible to everyone in the theater and accessible to the contestant to be sounded as and when the contestant directs..

THE CHARACTERS

The producer/director chooses each of the contestants, keeps a watch on the time, monitors the performance of each member of the cast, and rules on questions of a technical nature.

The host, OS, once the contestant has been selected shows the contestant to his seat at the editing desk. The host gives whatever assistance is needed for the contestant to write his game plan; that is to say his string of instructions. OS also assists in assembling the team and helps issue the instruction cards. OS also has the responsibility of showing the complete team to their correct seats in the audience. OS has to remember in particular which of them carries the opening instruction. The game hostess, IP, has but one function - to remember which member of the audience will be next to pass an instruction up to the stage. IP has the complete and undivided help of CS, one of the floodlight operators to assist her. His function is to floodlight the bank of seats wherein the next contestant sits.

There are four Chinese Jugglers; AHLX, BHLX, CHLX, and DHLX. They juggle cigar boxes as individuals and as a team. The performing dog, FLAGS, sometimes joins in to receive or pass one cigar box at a time. Not so bad as the dog also has responsibility for balancing 6 other boxes.

Each instruction that is passed to the stage is decoded by the expert ALU into those verbal commands necessary to instruct the other members of the cast in the performance of the instruction.

The last member of the cast who needs an introduction now is the illusionist INTERRUPT. He appears and disappears through the trap-door to pass to the jugglers the toggle switch settings on the lectern and to take from the jugglers which bulbs in the pixelator are to be turned on or to be turned off.

The usherettes are: BP, SP, SI, and DI. The three remaining floodlight operators are: SS, DS, and ES. The functions that BP, SP, SI, DI, SS, DS, and ES perform are explained in the second and third classes as the games that are played become more and more technically complex.

TECHNICAL CREW

The crew upstairs in the balcony are Ron Bios, D. K. Bios, and Dop Sis. Sometimes Ed Torr, Masm Link, and Dee Bug come into the assembly area to help the contestant get from ideas to a program that works.

COURSE CHRONOLOGY

In the four classes of playing the game (16 contact hours) the students would know the mnemonic, the function and BEEN, the 17 members of the cast. They would have covered all 50 plus instructions including pseudo instructions. Of the 41 concepts they would have been exposed to these as the most significant 15:

(i) to that which IP always points
(ii) the "emptiness" of the theater's seats
(iii) an infinite loop
(iv) ALU's function
(v) the three things OS has to know to seat a team
(vi) the theater's seats being in blocks
(vii) jumping and conditional jumping
(viii) labels and addresses
(ix) calls and returns
(x) the hex code for arabic numerals and letters of the alphabet
(xi) interrupts
(xii) encoding instructions as numbers
(xiii) the display screen
(xiv) the keyboard
(xv) exposure to the international phonetic alphabet

Plus a pain free introduction to binary and hexadecimal representations, no math needed!

With the instructions and register set (cast) behind them, the class (in just 4 weeks) can read and understand (any?) assembly level language programs. They are now introduced to previously written programs with 1 or 2 deliberate errors in each. They must find and extirpate the bugs. In a gradual progression over the next 12 weeks they move to creating and debugging real assembly language programs of their own and learning the capabilities of the hardware peripherals.

EXPERIENCE TO DATE

The first night of the first outing had a team of 21 students all pulling together within 3 hours. During the semester, I never had seen before as much cooperating and student helping student in the labs. Progress was so exciting, reached introducing real programs with PSUEDO INSTRUCTIONS in 4 weeks! Virtually no drops because of perceived difficulty or hardness of course. Since that course, several of the students have approached me to create an ADVANCED ASSEMBLY COURSE; never had students felt that comfortable before. The second outing is proving to be very similar!

Still have rough spots. The change over in the 5th week to real PCs and a confrontation with DOS and a keyboard was dramatic and churning. That pointed out I needed a fun way to teach DOS and minimal DOS literacy plus how to use a word-processor-cum-editor. The second outing using a SALT approach to DOS in the fifth & sixth weeks has smoothed the transition.

The fifth class is spent in front of a real PC doing "literacy" hands-on exercises. The sixth class is spent using DEBUG to assemble short programs, concentrating on content, not process. The actual process of going from idea to working code was (and is) unnecessarily complex and required far too much familiarity with DOS and the PC for inexperienced students to be successful using the full blown assembler. Using DEBUG got the students going from idea to working code with a minimum of process. In the seventh class the same ideas (whose codes were assembled using DEBUG) are taken through the full blown assembler. The students now are able to concentrate on the process, not the content.

Finally, I have made the games relevant! I use the games to introduce real sections of code that will be used to solve problems in the later labs.

METAPHOR EXPLAINED

a) The Cast:

Jugglers: dual function "ACCUMULATOR" registers: where the number crunching takes place

AX as one 16 bit or, as two individual AH & AL 8 bit each registers

BX as one 16 bit or, as two individual BH & BL 8 bit each registers

CX as one 16 bit or, as two individual CH & CL 8 bit each registers

DX as one 16 bit or, as two individual DH & DL 8 bit each registers

Usherettes: INDEX registers: Point to individual locations within blocks; it is from those locations that the numbers to crunch come, and to those locations that the results go to be stored.

BP
SP
SI
DI

Flood Light Operators: SEGMENT registers Point to various blocks of locations.

CS
SS
DS
ES

Hostess: INSTRUCTION POINTER Points to next instruction.

IP

Performing Dog: FLAGS REGISTER: Holds carry bit, sign bit, zero bit, overflow bit, auxiliary overflow bit, parity bit & direction bit.

b) The Instruction Mnemonics: The instruction mnemonics and their associated functions are for real. As previously mentioned at the end of the fourth class students should be able to read programs written in Assembly mnemonics.

c) The Environment, Concepts, Methodology, and system.

The total theater is "your PC, the hardware".

The unseen upper balcony and technical crew "the operating system software that makes it happen".

The blocks of audience seating are "blocks of memory".

The Team of Contestants is "a program".

The desk is where "programs are penciled out and edited".

The green area is where "programs are assembled and linked".

The stage, runways, jugglers, ushers, floodlight operators, hostess, expert, performing dog, trap door, & illusionist are "the cpu chip".

The boxes are "peripheral interfaces".

The host, OS, represents the "command line & its interpreter from the operating system".

Leading a team to their seats is "loading a program".

The lectern is "a keyboard".

The Rainbow Pixelator is the "monitor's screen".

The contestant team leader is "you, the would-be assembly language programmer".

d) The Games:

All games are genuine IBM PC Assembly Language program sequences, the real thing. Almost identical scripts can be assembled into real working assembly level code. There is 1 to 1 transference between the games and real code.

Example: the very first game that is played the first night:

```
MVI   AHLX, O█O█
RCR   AHLX
HLT
```

EVERYONE'S very first exposure to assembly level programming demonstrates a program that runs to a successful completion. That is to say, IT WORKS! No bugs.

The second game does have a bug in it:

```
MVI    AHLX,    O█O█
RCL    AHLX
RCL    AHLX
RCL    AHLX
RCL    AHLX
JMP    • - 5
HLT
```

It is a good ice breaker (I have been accused of staging the world's most elaborate Aggie joke) but the mystery and frustration of a PC locking-up is now exposed! In the students' future computer confrontations where a machine goes off into the weeds, as he or she reaches forward to power off, rather than being angry from frustration, they will smile as they remember the first class!

RETENTION

Each of the game playing classes concludes with a review and revision of that class's material. Students are handed a previously prepared sheet and instructed to answer all the questions. They are to treat it as an open book review. If they do not have the answer, they are to ask another student, or me, or look at the posters. They are not to leave without it's being filled out. They then take it home and last thing that night, the next day, two days later, and sometime in the 24 hours preceding the next class make a time to relax physically and mentally and review their sheet (ten minutes max each time). This will give them long term recall! A box containing the proposed dates and open spaces for time and initials is in the top right hand corner of the class hand-out.

For example at the end of the first class, the review is:

1. The outline of the theater and stage is given and the students are asked to fill in the items that were described.

2. They are asked for the name and function of each member of the cast.

3. They have to explain some pertinent feature of each instruction introduced that first class.

4. For each concept listed, describe what they experienced in the game show and then asked for that concept's significance.

5. Finally, as homework, write their own 12 instruction game and act it out in their mind's eye, describing out loud what is occurring (left & right brain, thanks, W. W.).

CONCLUSION

Playing this game takes the mystery out of how, where, who, and why. Students now have something concrete on which to peg their own knowledge. The game makes sure that everyone in the class has an elementary understanding of how it all goes together without boring the computer mavens and without losing the most computer craven. It also is a good ice breaker, introducing the students to each other and the teacher. The games encourages collaboration and helping each other; the class changes from a group of individuals to a single everybody on one team. This carries over to the labs! Best of all it paints the course as fun, not an intimidating sweat shop. It has been an exhilarating experience for me to teach this subject this way. It has had tremendous success at Brazosport College. I am very excited about the potential and what can be taught in an accelerated fashion. The future is going to be fun.

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Sagen Sie es dem Jongleur: Ein Spielmetaphor zum Unterricht des IBM-Mikrokomputer und seiner Assembeliersprache.

Auf dem Niveau eines Fernsehspiels wird muehelos Unterricht ueber eine normaleweise sehr schwere Komputersprache gegeben. Zur gleichen Zeit demonstriert diese Metaphor die Art und Weise, wie ein Komputer funktioniert. Sie stellt eine angenehme Umgebung zur Verfuegung, die Spass macht und Versagensfrei sowie aergerlos ist -- man braucht vorher weder zu wissen, wie man den Komputer anzustellen hat, noch wie man die Tastatur zu behandeln hat. Sie benoetige keine grosse Kapitalanlage um die Hardware zu kaufen, die sehr schnell veraltet. Sie hat auch ein niedriges technisches Niveau und kann in jedem Klassenraum benutzt werden. Das Ziel des Programmes ist es, keine Person verwirrt, frustriert oder verloren aus der Klasse zu schicken. Die zwei Kursen in der Sprache der IBM-Mikrokomputers, die in dieser Art und Weise in Texas auf dem Brazosport College lehrt worden sind, haben bemerkenswerte Ergebnisse gezeigt.

"Di la al malabarista": Una metáfora del "gameshow" americano para enseñar el IBM-PC y su lengua de asamblea.

Esta metáfora usa el nivel de complejidad de un "gameshow" de televisión para enseñar con facilidad una lengua de computadora normalmente bastante compleja. También ves como funciona una computadora. Provee una atmósfero agradable, divertida, (no hay que ni saber como prender una computadora y mucho menos como usar el teclero), barato par la enseñanza y que no requiere una aula con equipo "high tech". El objeto de la metáfora es terminar la clase sin un estudiante perplejo, confuso ni frustrado. Hasta ahora dos cursos de tres horas de crédito han sido enseñado con este sistéma de computación en Brazosport College, Texas y han tenido resultados estupendos.

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Should we believe the National Research Council's criticism of SALTT?

by

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Abstract. Our purpose was to critique the National Research Council's book *Enhancing Human Performance* (1988) with its generally negative criticism of SALT/Suggestopedia. We studied its comments, criticisms and conclusions one by one. The EHP reviewer emphasized and expanded on occasional negative reports to the general exclusion of positive reports about accelerated learning. Several instances of inaccurate and misleading reporting were documented. The biased and inaccurate reporting of the EHP reviewer ends in a generally negative evaluation of SALT/Suggestopedia. This conflicts with our own generally positive evaluation of the accelerative learning results from our purview of the whole field of research on SALT/Suggestopedia.

* * *   * * *   * * *

The purpose of this paper is to respond to the criticism of SALTT/Suggestopedia as published in *Enhancing Human*

Performance: Issues, Theories and Techniques, written by the National Research Council in 1988. (Note: SALTT is the NRC's version of SALT - Suggestive Accelerative Learning and Teaching Techniques.)

CONTROL FOR MOTIVATED TEACHERS

On p. 55 the EHP reviewer stated, "Almost all of the experimental studies of the SALTT, are confounded by the motivated teacher effect." Indeed this is a valid criticism, but it should be pointed out that not all of the studies were confounded by the motivated and selected teacher effect. The laboratory studies that were done on a short term basis were not subject to this confounding effect.

FIRST SPANISH STUDY OK

On p. 56 Schuster (1976) was criticized for his research on teaching Spanish. The reviewer stated, "First the comparisons did not include nonclass study time, which, if equivalent (at the rate of two hours per original course hour), might reduce the original ratio from 3:1 to 1.3:1." This is definitely not true, as Schuster originally had reported on outside of class study time. Half of the Spanish class students had said that they had studied the same amount of time for a similar four credit course, and the remaining half of the students reported that they studied less than the usual amount of time. Thus, very conservatively, the 3:1 ratio is upheld and might even had been 4:1 rather than being reduced as the EHP critic suggested. The EHP critic reported on p. 57, "Schuster (1976) interpreted his findings as nonsignificant. The results actually showed a strong trend in the opposite direction, namely, that the SALTT students performed substantially worse ($t=1.96$, $df=49$, $p<.06$ level in a twotailed test; $p<.05$ in a one-tailed test)." It is true that if the study were repeated a second time that the study might have shown statistically significant results with the experimental students worse than the control students taught conventionally. What the critic did not state however, is that once a study has been done, you have to abide by the statistics and you cannot hedge by saying what might have been; you have to accept what actually was. A much more severe criticism of the critic, however, is is to be found on page 57: the reviewer ignored the second criterion which was favorable in this same study. The students taught by SALTT had an average that was slightly but not significantly better than the average of the control students taught conventionally. This is biased reporting when the critic from the same report took one result that could be construed negatively and conveniently excluded a second criterion which favored the SALTT group.

SPANISH LAB STUDY

On p. 57, the EHP critic reviewed the Bordon and Schuster (1976) study. The critic didn't even check the spelling of the first author's name. Instead he wrote it as "Borden" as in "Elsie the Borden" cow. The reviewer stated "The experiment used students in an introductory psychology subject pool, who were required to spend several hours as subjects in order to satisfy a course requirement. They are often poorly motivated to perform well in an experiment. Unusual procedures such as SALTT can motivate them to perform well for short periods of time. However, if the same procedures are employed over many hours, as in a normal classroom, they may not maintain this superiority." The EHP critic failed to point out that this study was a well-controlled laboratory study that investigated three separate aspects of SALTT. As such, motivation of the students was controlled by random assignment over the experimental conditions. All three aspects or factors were statistically significant as well as their cumulative interactions. This study provided support for the theory as well as practice of SALTT, something positive conveniently neglected by the critic.

IMAGERY CAN'T BE DROPPED

The EHP reviewer stated on page 57, "in the same study examining SALTT over multiple sessions, Schuster and Wardell (1978) found no benefit of Suggestopedic features after the first hour suggesting that gains may be short lived." The EHP reviewer may not have read the original study as he or she certainly did not quote from the study accurately. The criticism above simply is not true. The authors had four SALTT or suggestopedic independent variables manipulated at two levels each in the study: Suggestive Positive Atmosphere, Early Pleasant Learning Restimulation, Dramatic Presentation plus Mind-Calming, and Imagery plus Sensory Projection. The first two independent variables had two levels each throughout the experiment between groups of subjects. These variables were not manipulated in the dropout phase as implied by the EHP critic. Of the two variables that were investigated for their dropout effects only the dramatic presentation plus mind-calming variable showed no effect when dropped out after having been used originally. Imagery plus sensory projection when absent in the dropout phase did result in a significant drop of almost fifty percent after the subjects had used it originally. However, this dropout suggests that the variable should be included after the first hour, and implies that gains may be long lived rather than short lived as the EHP critic suggested. The EHP critic was guilty of inaccurate and misleading reporting.

USE OF MUSIC PUZZLING

On p. 57, the EHP reviewer stated, "Recent studies have found little effect of music (Alexander, 1982), or the elimination of dramatic presentation and music (Schuster, 1985)." The study by Schuster (1985) referred to did not investigate dramatic presentation and music together. The critic either did not read the study carefully or at least he/she had not reported the study correctly; in this study dramatic presentation was not investigated. This is another error of biased and inaccurate reporting. Schuster (1985) had investigated the influence of music as background while studying, not as an adjunct during a presentation phase in a SALTT lesson.

OVERALL STRESS REDUCTION HELPS

The EHP reviewer on p. 58 criticized Schuster and Mouzon (1982), and stated, "Reducing stress, relative to normal classroom levels, does not enhance learning in general; rather, it helps low stress (baseline) individuals and hinders high stress (baseline) individuals (Schuster & Martin, 1980)." This is in error, because it took a minor result from the study out of context and made it seem as if it were the major conclusion. What the study really had done was to show first of all, corroboration of the compensating interaction between the stress trait and the state of stress during learning, state-trait matching. This has been reported before in the literature. That is, chronically high anxious subjects learn better under additional, rather than less stress typically; conversely chronically low anxious subjects typically learn better if relaxed in the learning situation. This study not only replicated this state-trait matching finding in the literature during short time periods in learning, but it went on to show that if the relaxation extended to the entire learning situation in the environment, then the suggestopedic claim of overall long term relaxation throughout facilitating learning was corroborated. Thus the reviewer was once again guilty of taking a minor corroboration of a reported phenomenon from the study, and neglecting completely the major finding that overall and pervasive relaxation even for chronically tense students helps learning. It appears as if the reviewer may not have read the original report, instead perhaps, relying upon a summary from an abstract.

RUSSIAN STUDY PUZZLING

On p. 58, the EHP critic reviewed the Bush (1985) study carried out at the Defense Language Institute Foreign Language Center in California in teaching Russian. The EHP reviewer mentioned that the suggestopedic section met for ten weeks whereas the traditional section met for fifteen weeks, and that the suggestopedic group performed significantly worse by 40 percent than the control subjects. Why didn't the reviewer comment on the difference in time in this case when the results were against SALTT/suggestopedia? The critic had commented unfavorably and disparagingly against the study time in the study conducted by Schuster (1976). Was the total time in each section controlled?

COMPARING APPLES AND ORANGES

The EHP reviewer on page 58 commented on the negative results study done by Wagner and Tilney (1983). In this particular study students had learned a three hundred word German vocabulary while studying over a three week period. What the EHP critic failed to point out, was that the study really compared apples and oranges: the comparison group was taught by a live and experienced German instructor, but the experimental students listened to tapes with and without music, and without a class instructor. The experimental students learned German by themselves, a fact completely ignored by the EHP critic. Suggestopedia claims a live instructor is essential. We feel that this study should have the results discounted completely because of the apples and oranges comparison, a stated conclusion ignored by the EHP reviewer.

REOMMENDS ARMY STUDY SALT

On page 59, the EHP critic summarizes the SALTT literature and concludes, "the Army can, however, distill components of cognitive psychology and accelerated learning to apply them to Army training. It should monitor and support research to identify procedures that reliably enhance learning. Additional basic research is needed to produce guidelines for instruction. . . ." While we applaud the EHP critic's statement that the Army should monitor and support research on procedures that reliably enhance learning, including accelerative learning, the reviewer missed the point about a major feature of suggestopedia/SALTT. George Lozanov (1978) comments that the major factor that makes SALTT/suggestopedia work is the expectation of improved performance on the part of the students, in other words, the Rosenthal effect. There is a considerable body of literature to support the importance and usefulness of the Rosenthal effect in the classroom as well as the lab. It's surprising that the EHP critic completely neglected this paramount principle of suggestopedia.

Summary

The reviewer who wrote the section on Suggestive-Accelerative Learning and Teaching Techniques (SALTT) for the monograph *Enhancing Human Performance* took advantage of occasional negative published results and expanded on them in general to the exclusion of positive reports. The editorial policy of the SALT Journal, as printed in each issue since its inception in 1976, has been to publish theoretical articles, classroom teacher reports, quasi-experimental studies, as well as reports of controlled laboratory research. This is desirable in a newly developing field such as SALTT/Suggestopedia where only the major principles are certain. As such, publishing an occasional negative result is heuristic: it leads to progress and better education in this case. We have assumed the Journal readers were astute enough to differentiate causality studies from non-causality studies. We may have been mistaken in the case of the EHP reviewer. The EHP reviewer also had several instances of inaccurate reporting that could mislead the reader and contribute to the generally negative report about Suggestive-Accelerative Learning Techniques. The reviewer must have read some of the positive results in the reviewed literature, as the reviewer reported at the end, that the Army could distill components of cognitive psychology and accelerative learning to apply to the Army training situation. With this we whole heartedly agree. Should we believe the National Research Council's report on SALTT? The answer is clearly "no!" We feel that biased and inaccurate reporting is not worthy of our prestigious National Research Council. Accordingly, we register protest. We need both better research and better reporting!

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Was halten wir von der Kritik des nationalen Forschungsausschusses an SALTT?

Unsere Absicht war es, ueber das Buch des nationalen Forschungsasuschusses "Enhancing Human Performance", 1988, (die Steigerung menschlicher Leistung) Kritik zu aeussern. Im Buch gab es im allgemeinen negative Kritik

an SALTT und der Sugestopaedie. Wir ueberprueften eine nach der anderen seiner Aeusserungen, der Kritik, und der Schulssfolgerungen. In der Buchbesprechung werden oft negative Berichte betont und erlaeutet, waehrend positive Berichte ueber beschleunigtes Lernen ausgescholssen worden waren. Wir dokumentierten viele Beispiele, wo ungenaue verfuerende Auskuenfte erteilt worden sind. Durch die voreingenommene Haltung und die Ungenauigkeit des Besprechers bringt der Bericht die Bewertung von SALTT und der Sugestopaedie zu einer ziemlichen negativen Schlussfolgerung; diese widerspricht unserer im allgemeinen positive Bewertung des beschleunigten Lehrens, die aufgrund unserer ganzen Forschungsarbeit der SALTT und Sugestopaedie gegruendet ist.

¿Debemos creer la crítica de SALTT por el Concilio Nacional de Investigación?

Nuestro propósito fue una crítica del libro del Concilio Nacional de Investigación, Enhancing Human Performance (1986), con su crítica negativa de SALTT/Sugestopedia. Estudiábamos sus comentarios críticos y conclusiones uno por uno. El revisor del Concilio Nacional de Investigación ponía énfasis y expansión en comentario negativo a la aprendizaje acelerado. Varias instancias de reportaje erróneo y de falsas apariencias estaban documentadas. Este reporte del revisor influido y erróneo termina en una evaluación bastante positiva del aprendizaje acelerado que resulta de nuestra vista previa del campo entero de la Investigación de SALTT/Sugestopedia.

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1989, 14(2).

BOOK REVIEW

Training the Teacher as Champion
By Joseph K. Hassenstab and Connie C. Wilson

Nevada City, CA: Performance Learning Systems, Inc.

Reviewed by
John Senatore

How many teacher *training* programs can you name? (Not teacher education, teacher training.)

I was put off by the title and the cover--and not by the book. (Unlike those people for whom "champion" and a medal attract, I associated with breakfast cereals, questionable champions, cruel competitions and unexamined coaches.) I want you to know this book, use it, recommend it to those who want to know about alternatives that are working.

The authors present an argument for seizing the upcoming opportunity (mass teacher retirements) to make a significant change in American education by training teachers. That is radical. We replace teacher education with teacher training. So what skills do teachers need training to perform?

Hassenstab modeled excellent teachers, then designed and implemented graduate courses and training to install in others the skills of the modeled teachers. The syllabi in the central portion of this book identifying teaching-skills may be worth the price of the book. Here are starters, comparisons, a self-examination. (How many of these skills do I have as a teacher? Where did I learn these skills?)

The authors expose impressively the lies about priorities, time and commitment concealed within statements of "There's no money...." and "We don't have the time..." What they recommend works. The abstracted reports of trainings clarified functions and stimulated me.

"Champion" may not be the word to motivate all people involved in teaching. (Do you really want to be a champion?) As Hassenstab has seen, shows and argues, treating teachers as champions produces different results, even highly desirable results. (Another book that says: Stop doing what doesn't work!) So, a champion by any other name will...

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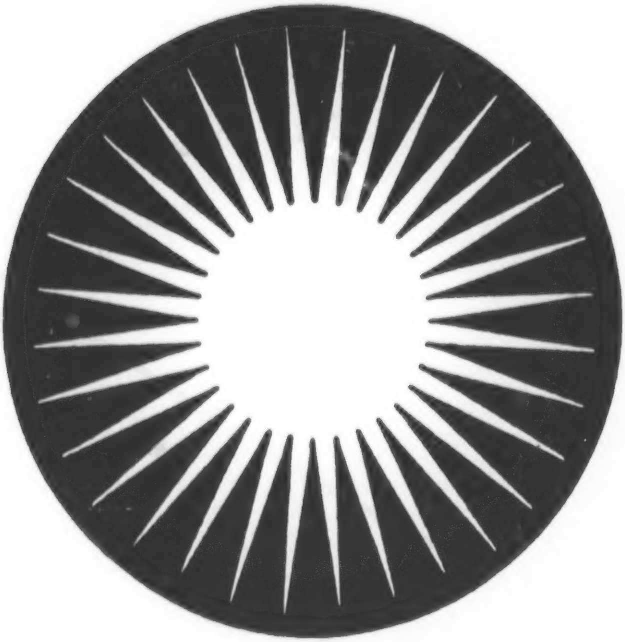

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Guidelines for contributors to the JOURNAL OF THE SOCIETY FOR ACCELERATIVE LEARNING AND TEACHING

The Editor welcomes submission of manuscripts with a focus on accelerating and improving teaching and learning, particularly with classroom suggestion or Suggestopedia. This journal publishes articles on: critical reviews, theoretical analyses, speculative papers, case studies, quasi-experimental studies, as well as reports of controlled studies of empirical research.

MANUSCRIPTS should be typed on one side of standard 8 1/2 x 11 bond paper. Do NOT use ditto. The original and 3 copies of all materials should be submitted, but the author should keep a copy for checking proofs. All material should be DOUBLE-SPACED, with ample margins on all 4 sides. Typical length is about 20 pages, including footnotes, tables & figures. Longer papers may be suitable in some cases.

REFERENCES should follow APA style according to the latest American Psychological Association Style Manual. See any issue of this Journal for examples. In the body of the text, the work of other authors should be referred to by name and publication date in parentheses as follows, "Xia and Alexander (1987) reported..." In the references the referred-to articles should be listed fully in alphabetical order by author(s), title and publication source information as follows, "Voci-Reed, E. (1987). Teaching adult learners using accelerated learning. Journal of the Society for Accelerative Learning and Teaching, 12 (1&2), 85-94." Footnotes should be used rarely, if at all.

TABLES and FIGURES should be kept to a minimum, and should supplement rather than duplicate the text material. Each table should be typed on a separate sheet of paper and placed at the end of the manuscript. Figures should be submitted in a form suitable for photographic reproduction: use India ink on a good grade of drawing paper. Photographs (black and white only) should be 5x7 glossy prints.

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Authors using a word processor: 1. Submit 4 copies of the manuscript using FIXED-WIDTH characters, and NOT typeset! 2. Submit a floppy disk of the manuscript, specifying both the computer and word processor in detail.

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Achieving Successful Whole Brain Thinking

Jan Erland

Lawrence, Kansas

Abstract. This theoretical article discusses the rationale for teaching sequential and simultaneous information concurrently. Suggestopedic training procedures are applied to generate linear, analytical thought flow. Two alternative methods to improve visual and listening memory are discussed. These procedures consist of sequence training, concentration and attention strategies, with right brain media applications. Suggestopedic methods can be compatible with an intensive drilling format.

* * * * * * * * *

Creating Synergistic Thinking: Sequence Training Using Media and Dramatic Arts Techniques.

Information processing is the systematic interaction of information in various areas of the brain. The ability to form rapid thought interrelationships is a physical phenomenon triggered by electro-chemical activity in the neuronal synapses. However, if neuronal activity is impaired or reduced, there may be a corresponding reduction in interaction between the two brain hemispheres. This may result in poor thinking ability characteristics, such as poor reading, spelling, arithmetic, and written and oral communication. When both brain hemispheres are stimulated using specific exercise training, synergy may be induced and thinking ability characteristics can be improved.

Some currently applied Suggestopedia procedures focus on rapid learning using right brain relaxation techniques, including musical timing strategies (Lozanov, 1978). This article introduces additional components using left hemisphere sequence training and right hemisphere media and dramatic arts techniques.

Kaufman and Kaufman (1983) outlined and described left and right brain thinking activity modes in their Sequential-Simultaneous Dichotomy. They isolated the sequential and simultaneous information processing components that are necessary for reading, writing, spelling, and arithmetic. The Kaufman Assessment Battery for Children, (K-ABC) is widely used to identify specific sequential and simultaneous thinking patterns. Hatta (1960) and Coles (1987) agree that reading requires the synergistic interaction of both hemispheres.

The primary objective of this visual and auditory integrated training system, is for the brain hemispheres to interact with more fluidity. The learner can thereby more rapidly acquire, retain, and retrieve classroom information.

Sequential processing involves learning stepwise information. It is an instrumental component in reading comprehension, spelling, mathematics, grammar, and following a series of instructions. Simultaneous processing involves parallel imagery, or holistic visual gestalt specialization. These two brain functions, when combined into whole brain thinking, allow rapid learning to occur.

Left brain sequence training is a foundation for analytical thought and conceptualization. By carefully exercising the brain's ability to increase sequential memory span length, capacity, and its strength and resilience for automatic memory recall, whole brain thinking improvement can be achieved. When underlying sequential components are "overlearned" using specific exercises in a drilling rehearsal format, improved analytical thinking and conceptualization result.

Short term memory acquisition is necessary for information to be entered into long term memory storage. This may be achieved by teaching concentration and attention strategies using right brain media (simultaneous) applications with sequential training.

Most people can successfully absorb five to nine bits of sequential information (Miller, 1958). When the information span exceeds the individual's visual or auditory memory span capacity, the person experiences mental "overload," and feels psychologically frustrated. This may be described as an information processing gap. Learning is blocked. Frustration caused by this mental overload can be alleviated thorough a warm emotional classroom climate where sequential training is applied. Expanding the individual's memory span length and capacity facilitates learning.

Chunking key words and varying vocal intonation are integral in the systematic drilling procedures used in analytical sequence training. This resulting mental activation may be called "Firing Up the Brain." Many types of academic content may be used in systematically carrying out the sequence rehearsal system (Erland, 1989).

The following exercises are examples of those used in rote sequential memorization drills: the spelling of words, letter span sequences, poetry recitation, nonrelated word series, number spans progressing from three to ten digits, analogies, and coding with key words. When sequential memory is lengthened and strengthened, and accompanied by simultaneous spatial visualization, complex thought interrelationships develop.

The language centers of the brain are activated by simultaneously verbalizing (left brain activity) and visualizing a stimulus (right brain activity). Paivio (1971) stated that visualization and verbalization are the basic components of thinking. In the following procedural descriptions, visualization instruction is accompanied by intensive, repetitive oral drilling. In the application of these training procedures, individuals begin at their entry level memory span gradually increasing the length as they improve on a daily basis. The verbalization progresses from overt to covert rehearsal, in agreement with Meichenbaum's (1977) Cognitive Behavior Modification guidelines.

Two Methods for Improving Auditory and Visual Sequential Memory

Method No. 1

In order to provide the relaxed Suggestopedic atmosphere needed for learning, and to create right brain synthesis, the following media applications can also be of benefit: slow adagio music to set mood and pace; a metronome set in time with the adagio musuc to give a sense of pacing and rhythm; colored acetate in overhead projector transparencies in a specific color, with preference given to red or pink; and pink flood bulbs used to color the classroom and create a relaxing environment. The students are instructed to relax and "walk through the sequences" with the characters, in deliberate step with the metronome and music. They focus only on the step just ahead of them as they begin the sequence. Mentally visualizing the information by looking too far ahead induces a right brain sweep, thus hindering the left brain stepwise training procedure.

Colorful, life-size animated characters present the training sequences on video tape with an accompanying manual. These figures are used to improve auditory and visual sequential memory through visual association and auditory tonal dimensions. The typical training sequence is divided into three to five oral segments. A videoed face and accompanying voice represent each segment. The students simultaneously recite with each speaking animated character segment, gradually and systematically memorizing the sequence. As the segments increase in length, the students automatically incorporate the additional information, thus increasing memory span capacity and resilience. The animated characters reduce stress in the teaching environment and add a focal concentration point. The sequential videoed action automatically forces the mind into a chunking pattern. This can be called "the karate chop of the mind."

The students first orally read in unison the line in the manual. Then they recite the sequence twice through with the characters in the videoed segments. The entire sequence is then chorally repeated with one of the animated characters, thereby synthesizing the information. A third repetition follows, with a single animated character singing and striking a drum at the beginning of each segment (a right brain synthesis framework). The segment is repeated a fourth time by the same animated character without the drum beat at the beginning of the segment. This procedure gives the mind a focal pattern synthesis forming a right brain gestalt.

After the students chorally recite with the videoed characters, each student stands and independently recites the entire sequence for the rest of the group. The sequence is written on paper, and can also be performed using an accompanying computer program.

Enthusiasm with verbal group support is encouraged. The individual students recognize their own success, and the continuous improvement of the other members of the group. This self-awareness process leads to generalization of the training procedures.

Method No. 2

A supporting procedure, for independent home practice exercise, employs the manual, and auditory tapes. A student orally reads a line or sentence with a nasal-voiced character, visualizes the same line with a low-pitched voiced character, and then repeats it either simultaneously with, or just ahead of, a high-pitched voiced character. With the auditory tape on pause, the student recites the excercise independently, and records the sequence on paper when applicable to the exercise.

The foregoing procedures add a new dimension to the Suggestopedia method of vocal dynamics, i.e., regular, whisper, and loud. The voices contrast low, high, and nasal pitch. The low voice is the auditory foundation of the exercise, and creates synthesis on the drilling repetition.

The right brain applications described open the gateway for left brain sequence training, allowing the left brain to receive and absorb analytical chunking. The left brain analytical chunking complements the simultaneous application of the right brain intonation, singing, rhythm, and patterning.

The two methods described, statistically documented as successful in improving whole brain thinking, are applicable for ages ten through adult (Erland, 1980, 1989). The success of this sequential and simultaneous training is validated by gains on standardized test scores, and by improved classroom and on the job performance following the instruction.

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* * * * * * * * *

Die Erlangung von erfolgreichem Denken des ganzen Gehirns.
Dieser Artikel untersucht die Begrundung des mitwirkenden Lehrens von der Auskunft, die folgerichtig und gleichzeitig ist. Die Methoden, die in der Suggestopaedia eingeuebt werden, werden augewendet, um einen linearen analytischen Gedankenstrom zu erzeugen. Zwei alternative Methoden, die das visuelle und Gehoergedaechtnis verbessern, werden behandelt. Diese Methoden bestehen aus der Einuebung des konsequenten

Denkens, sowie dem Verfahren zur Steigerung der gespannten Aufmerksamkeit, zusammen mit der Anwendung von der Media, die dem rechten Gehirn ansprechen. Die Methoden in der Suggestopaedia werden mit einem intensiven Uebungsformat vereinbart.

Logrando Exitosamente El Pensamiento Del Cerebro Integrado.

Este artículo trata sobre el análisis de la ilación de la enseñanza y la información simultanea en forma concomitante. Los procedimientos de la educación sugestopédica son aplicados para generar el flujo del pensamiento linear y analítico. Dos métodos alternativos para mejorar la memoria auditiva y visual son examinados. Estos procedimientos consisten en una serie de estrategias para la instrucción, concentración y atención, por medio de la aplicación del cerebro derecho. Los métodos sugestopédicos pueden ser compatibles con el formato de una intensiva ejercitación.

* * *   * * *   * * *

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Prefocused Mapping: A Workable Strategy for the Developmental Writer

Julie Ann Mix

Wayne State University

Abstract. Developmental writers, notorious for straying off the point, need a workable strategy to maintain focus. Prefocused mapping, an altered form of mapping (Buzan, 1976) keeps students on the point when they are generating ideas for essays from a narrowed topic. The students follow certain steps which involve whole-brain activity. They benefit by becoming more specific and coherent, and by utilizing cognitive, complex/critical thinking skills. This versatile tool adapts well to different levels of sophistication, modes of rhetorical development, and writing situations where clear ideas must be articulated. One of this techniques most significant strengths lies in its ability to transfer and ensure future, successful learning experiences for students.

* * *   * * *   * * *

Observing a developmental writer as he attempts to stay focused while writing an essay is like watching a person drive off the main road onto various byways. Neither one arrives at a destination. Wandering off the point of an essay is an inevitable problem for the developmental writer yet one that must be confronted. In an effort to address the issue with my writing students, I tried the technique of mapping (Buzan, 1976) to stimulate idea generation on a narrowed topic for the development of an essay. Mapping, a versatile, visual tool, is the process of circling a key word or phrase (in my case, the narrowed topic) as the "nucleus" and "branching off" associated words and ideas. I was eager for my students to write creatively and expressively while remaining focused and knew that techniques such as mapping are believed to tap into the brain's right hemisphere, the seat of creativity and expression (Buzan, 1976; Rico, 1983). To my surprise, however, mapping turned out to be a "roadblock" when students tried to focus in on a narrowed topic and generate ideas for essay development. This technique resulted in confusion as the diversified "branch" information left students struggling to "get back on the road" through establishing a focal point. The experience with mapping proved fruitful, nevertheless, because out of it, the successful "prefocused mapping" technique for developmental writers evolved. Very simply, out of frustration, I began to change the nucleus of the map from a key word to a question on a narrowed topic, and to ask students to answer the question on the branches, which later served as major support points for the essay. I used "prefocused mapping" frequently as students began to plan better, generate interesting information, and stay on the point when prefocused on a question. Of course students had to be taught the steps to this modified form of mapping just as they once had to be taught how to use a road map. As I was teaching the new technique, at first I thought that the fact students were staying on focus was reward enough. Through experimentation, however, I formulated a system whereby "prefocused mapping" was adapted to produce the major support points for various rhetorical modes, such as classification or causal analysis. This also served to foster critical thinking skills while rendering the key to a clearly stated thesis statement. Naturally, I wanted to share this technique with my colleagues. Therefore, it is to the evolution of this technique, complete with elucidative steps to allow for immediate adaption in the writing center or classroom, that this article is devoted.

The Conception of Prefocused Mapping on a Narrowed Topic

During the winter of 1987, I began to experiment with mapping in my developmental writing support program. I hypothesized that this technique could be valuable as a focusing tool from the very inception of a writing assignment, as a student limited a subject to a topic and a topic to a narrowed topic (sub-topic). When this technique was used to initiate a classification essay on human communication, for example, the maps appeared as shown in Figures 1 and 2. Progress was being made as other students experienced the same success by staying focused when narrowing from subject to narrowed topic using mapping.

Of equal importance, in my estimation, was the fact that I was integrating a creative, expressive technique into my teaching. I was aware that the "clustering" (Rico, 1983) and "mapping" (Buzan, 1976) techniques were beneficial as I had used them successfully myself. As Gabriele Rico postulates, when the right hemisphere of the brain is stimulated, it responded in a non-linear fashion, expressing itself through associations while exploring possibilities in the "connectedness of things and events". Only after mapping or clustering freely should a person activate the logical, linear left hemisphere to examine and make sense of the information generated. Rico stresses the importance of having the right and left hemispheres, powerful in themselves, complement one another through the use of this whole-brain technique. Of course this "on-off" explanation of hemispheric functions is overly

Fig. 1. Mapping subject to topic: Human communication to non-verbal actions

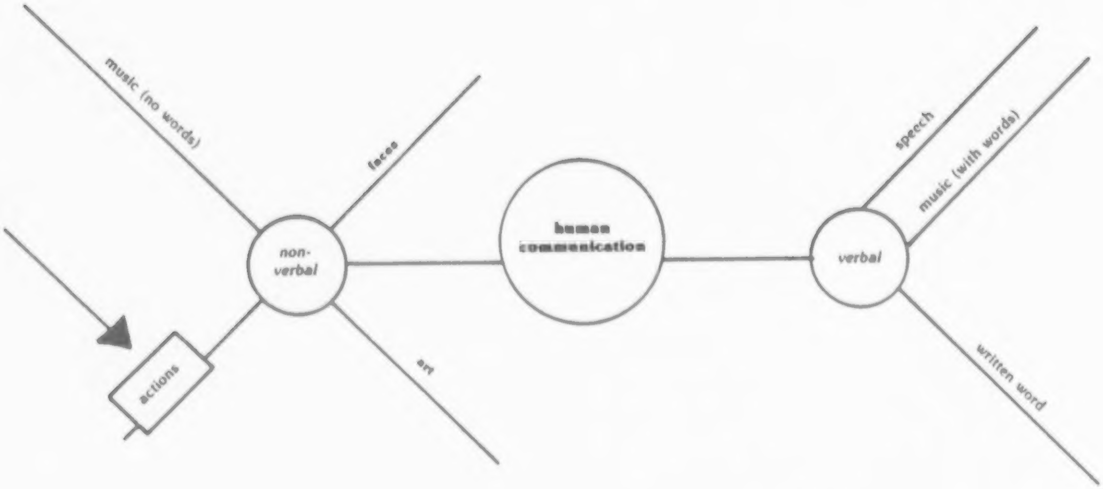
music (no words)
faces
non-verbal
human communication
verbal
speech
music (with words)
actions
art
written word

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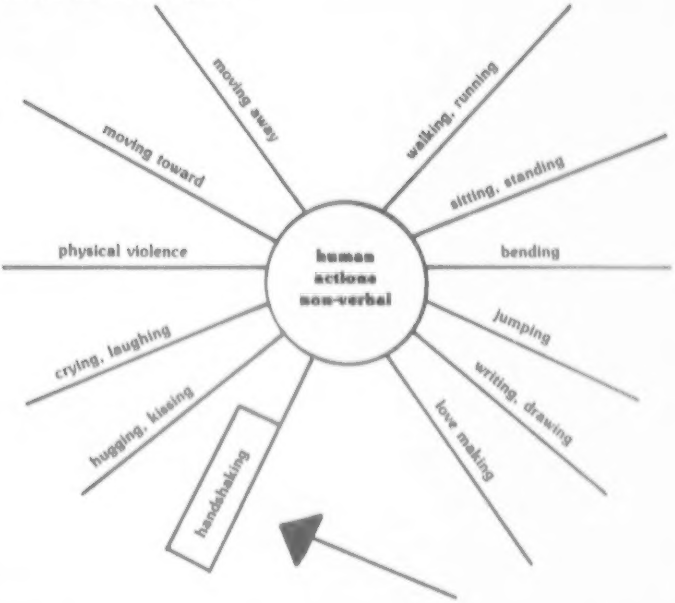
Fig. 2. Mapping topic to narrowed topic: Non-verbal actions to handshakes


human
actions
non-verbal
moving away
walking, running
moving toward
sitting, standing
physical violence
bending
crying, laughing
jumping
writing, drawing
hugging, kissing
love making
handshaking

simplistic in that nothing is purely black or white. As Robert E. Ornstein (1976; p. 33) points out, although each hemisphere is primarily responsible for separate functions, the hemispheres cooperate in "a unique blend of sequence and simultaneity".

Because I believed that mapping and clustering do facilitate creative expression, I was eager to build on the success students had experienced when limiting a subject to a narrowed topic. Therefore. working from Buzan's book, *Use Both Sides of Your Brain*, I began to place subtopics in the circle so that students could begin to generate ideas for essay development out on the "branches." All too quickly I discovered my mistake. The students produced a conglomeration of key words on the branches and then "froze up" at the prospect of dealing with all of them. The randomness, acceptable and welcome as it was during exploration of a subject for a topic or a topic for a narrowed topic, resulted in chaos. This process of controlling the material was something I had simply assumed that everyone could do. The developing writers, however, failed miserably. The problem was merely compounded when the students attempted to write their essays from a map of key concepts; coherence as well as focus suffered. I felt that I should have anticipated the difficulty even though I couldn't articulate the "why" of it at this stage.

I was about to give up on the mapping strategy for essay planning when I happened upon an alteration in the process that well-suited developmental writing students. In response to a student who failed our English Proficiency (essay) Exam because she was having difficulty focusing, I altered the nucleus of the map. I gave her a narrowed topic and then asked her to pencil it in the nucleus in question form choosing "what", "why" or "how" to generate information for an essay. This was consistent with my belief that writing should say one thing, and planning begins with the search for the dominant meaning (Murray, 1985). I then specified that the idea generation, the answers on the branches, should be expressed in phrases or sentences. My student made a noticeable improvement in sticking to the topic. I used this method with other students and realized quite immediately that I was on to something as the students responded so positively.

What follows here is a description of the steps for "prefocused mapping", with a recounting of the stages and their relations, as the technique evolved during the winter 1987 term.

Developing the Prefocused Map on a Narrowed Topic

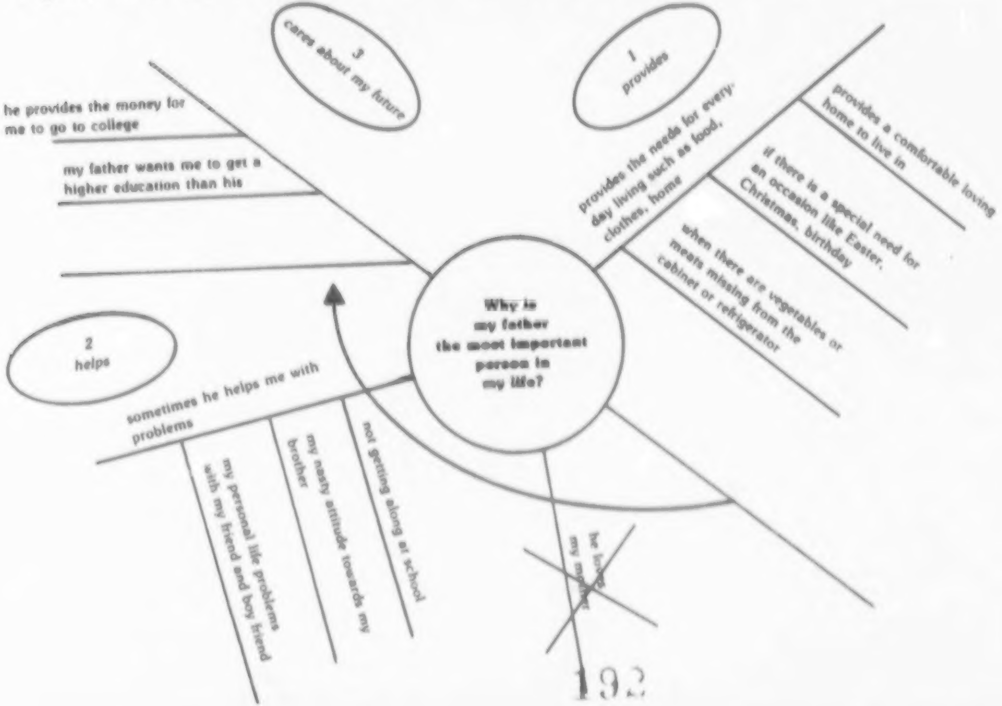
The prefocused map develops as shown in Figure 3. The student begins by changing the narrowed topic into a question and pencilling it in the nucleus of the map. In Figure 3 the question became, "Why is my father the most important person in my life?" The question is erased later and replaced with the answer which is the thesis statement or dominant meaning.

If the student is struggling with being specific and concrete in formulating the question, usually because the narrowed topic proves to be somehow ambiguous, I stop and do exercises to strengthen this. When the concept of being specific is immediately transferred to the student's work, that is, the question is re-written for the map in its clarified state, there is more of a chance that the student can begin to generate specific ideas in relation to this specific question.

Next, as shown in Figure 3, purpose (explain, convince/persuade or entertain) and audience are defined not only for the sake of remaining focused, but also for the sake of establishing a "persona" or "voice". The student is more likely to establish a "voice" by understanding clearly the relationship between a personal stance and that of the readers. Purpose and audience are entered at the top of the page.

The student answers the question on the branches in phrases or sentences (see Fig. 3) and, in essence, is involved in identifying major support points. I consistently

Fig. 3. Prefocused mapping: The most important person in my life (causal anlysis)


Why is my father the most important person in my life?
1 provides
provides the needs for every-day living such as food, clothes, home
provides a comfortable loving home to live in
if there is a special need for an occasion like Easter, Christmas, birthday
when there are vegetables or meats missing from the cabinet or refrigerator
2 helps
sometimes he helps me with problems
my personal life problems with my friend and boy friend
my nasty attitude towards my brother
not getting along at school
3 cares about my future
he provides the money for me to go to college
my father wants me to get a higher education than his
~~he loves my mother~~

encourage students to focus in on the question and be specific. I stress, however, that they should explore for answers freely without immediate "censorship". After they are done generating ideas, the students cross out unrelated or extraneous branches which do not answer the question, thus allowing the "business" function of the brain to begin working in concert with the "creative" function.

Next, as shown in Figure 3, the student checks each branch answer against the question and adds qualifying words (e.g. , "sometimes") and detailed information on sub-branches to ensure that the branch information specifically answers the question. This careful scrutiny is beneficial for maintaining focus and making logical sense. Then the student analyzes the interrelationships of the ideas presented on the branches and draws arrows to visually connect "what goes together". The student actually moves the information, possibly necessitating a redraft of the prefocused map. Coordinate and subordinate relationships are clarified further as the hierarchy of ideas crystallizes.

Here I ask the student to check and see if the ideas fall into any natural "categories". (Often other student model maps best convey the concept). When apparent categories can be abstracted, the student designates them by circling them or using some other coding to signify primary category designations as shown in Figure 3. Then the student numbers the ideas in the preferred order of importance such as emphatic order (increasing importance) or most familiar to least familiar. The student writes the numbers over the branches, as indicated in Figure 3, thereby incorporating the concept of ordering naturally and meaningfully into the lesson.

At this point, the student is ready to formulate the controlling idea or thesis statement. The question in the nucleus must be answered in terms of what knowledge and meaning the student generated on the prefocused map. The answer is likely to emerge when the student considers what the branch information means in relation to the question. I direct the student to ask what the information "boils down to" using category designations. The student erases the question and writes the complete answer, the thesis statement, as the nucleus. For Figure 3 the thesis statement became "My father is the most important person in my life because he provides for me, helps me, and cares about my future". After a brief discussion, the student refined that thesis statement to become "My father is the most important person in my life because he cares about my welfare and my future".

In Figure 4, a prefocused map appears for an assignment which directed a student to incorporate what he learned from reading an excerpt of Malcolm X's, *The Autobiography of My Life*, when writing on the topic: the keys to communicating and being educated. The question word he used was "What," and the question became, "What are the keys to communicating and being educated?"

Even if the first "draft" of the thesis statement in the nucleus is wordy, as in this example, I encourage the student to write it all out first and then to work on being concise so that no meaning is lost.

Looking at another example, in Figure 5, from the classification assignment presented earlier on the narrowed topic, "handshakes," my student used the question word, "what," and the question became, "What are the different kinds of handshakes?"

Fig. 4. Prefocused mapping: The keys to communicating and being educated

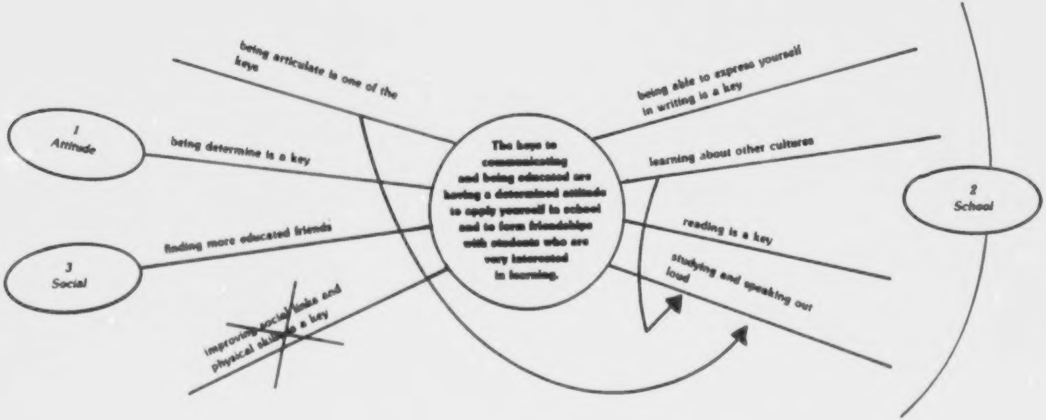

being articulate is one of the keys
1 Attitude
being determine is a key
finding more educated friends
3 Social
~~improving social links and physical skills is a key~~
The keys to communicating and being educated are having a determined attitude to apply yourself in school and to form friendships with students who are very interested in learning.
being able to express yourself in writing is a key
learning about other cultures
reading is a key
studying and speaking out loud
2 School

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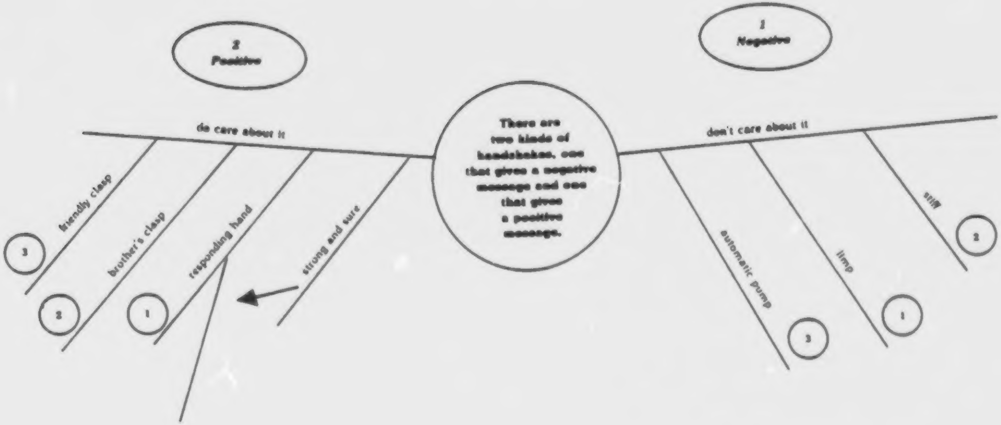
Fig. 5. Prefocused mapping: Classification


2
Positive
1
Negative
There are two kinds of handshakes, one that gives a negative message and one that gives a positive message.
do care about it
friendly clasp
3
brother's clasp
2
responding hand
1
strong and sure
don't care about it
automatic pump
3
limp
1
stiff
2

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A more sophisticated response may have been, "There are two kinds of handshakes, the gesture and the greeting." The essential issue here, however, is that the student has remained focused throughout this preliminary stage. In essence, he has generated his thesis statement in the nucleus and his major supporting points and their preferred order on the branches. (Please note that I could have easily directed the student on a comparison/contrast essay here with very little formal instruction.)

It has most likely become apparent that the developmental writer will not be independent and successful at prefocused mapping without practice. To take it one step further, the developmental writer will not be independent at this process until he has been led through it in most cases several times. When teaching individually, I may transcribe the maps during the first few sessions while the beginner responds to my questions, and may share models of maps in various stages created by other students. (I was delighted with how interested my students were in studying other students' examples.) In the classroom, the instructor can model the prefocused map on the board as the whole class participates, or groups of students can work together on creating maps. Actually, in my work I have found the classroom experience to be preferable to the individual tutorial experience as the students learn so much through interaction with one another.

Summary of Prefocused Mapping Steps for Immediate Use

At the beginning of the essay assignment, lead the student through these steps. They should:

1. Change the narrowed topic into a question (dependent on development mode) and pencil it in the nucleus of the map.

2. Identify purpose (explain, convince/persuade, or entertain) and audience, and enter them at the top of the page.

3. Answer the question in phrases or sentences on the branches, specifically one without "censorship", to create major support points.

4. Cross out unrelated information, that which does not answer the question.

5. Add qualifying words and detailed information on sub-branches.

6. Draw arrows to visually connect what "goes together" and move the information (possibly redrafting the map).

7. Circle category designations over the branches and number the categories in their chosen order.

8. Erase the question in the nucleus, and pencil in the answer (thesis statement) using categories to reflect the knowledge and meaning generated on the branches. (Asking what the information "boils down to" frequently helps.)

Benefits and Extended Uses of Prefocused Mapping

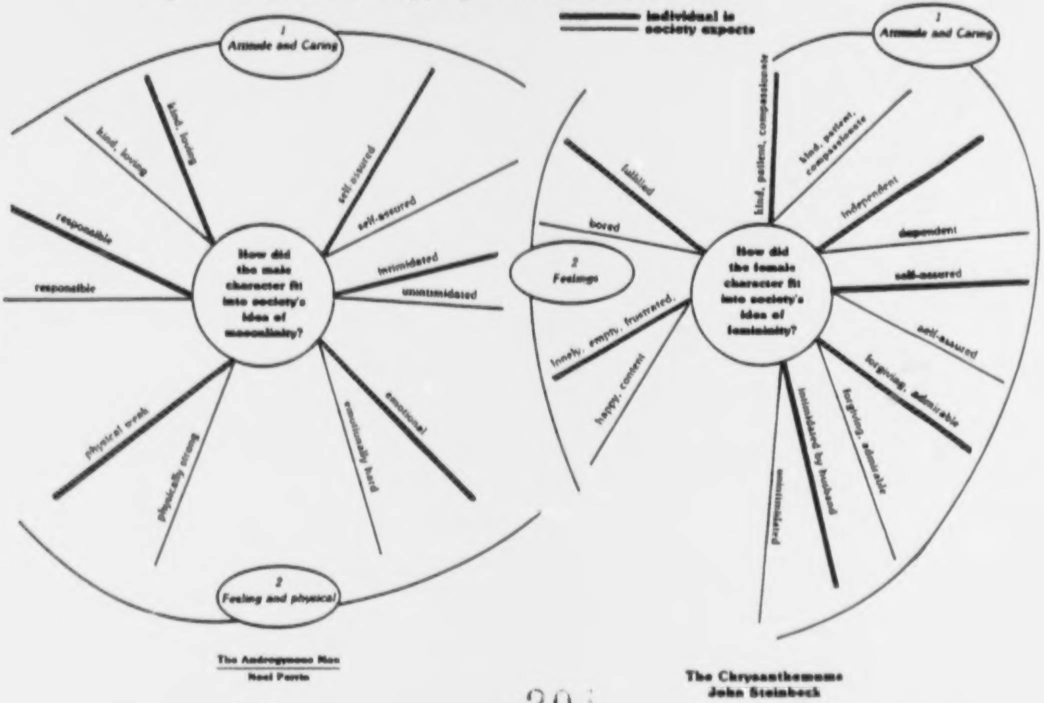
The prefocused mapping strategy presented here is beneficial not only for teaching focusing, but also for teaching the rudiments of being specific, detailed, and coherent, and sequencing and ordering of ideas. Also, this process is valuable because it offers essential "how to" information to the developing writer. If the technique is taught through interaction with the teacher and/or other students, the student is apt to benefit even more significantly from the integration of reading, writing, speaking, and listening (Moffett & Wagner, 1976). I realized the value as I was developing the prefocused mapping technique, but in spite of all its positive points, I still had an underlying feeling that perhaps it overly restricted the student. This feeling dissipated, however, when several important realizations which I will share, emerged.

First of all, prefocused mapping adapts to different levels of understanding depending on the individual. In other words, the student is free to operate at his level of sophistication and depth when generating ideas. This is apparent in the example previously presented, and becomes even clearer tn the example that follows.

Second, the student is learning critical thinking skills which are integrated into the lesson rather that isolated from writing (in workbook format, for instance.) Actually, through using this strategy, the student is dealing with many complex/critical categories of writing competence defined by Gould and Heyda (1986). Prefocused mapping sessions involve the student in generation of knowledge and meaning in such complex/critical activities as establishing a tone and persona qualifying a position or stance, examining biases, questioning opinion, and making and qualifying generalizations. Also, the student is involved in defining and explaining rhetorical problems, as through the use of the appropriate question words, and can adapt this model for idea generation particular to various rhetorical development modes. Causal analysis (Figure 3), classification (Figure 4) and definition, and comparison/contrast are those we use most frequently. For causal analysis the most obvious question word is "why". For persuasion, "Why should..." is effective. For classification, "What are the kinds of ..." or "What are the types of..." is used regularly. For definition, the question becomes "What is..." For comparison/contrast, the question word "how" is frequently used (e.g., "How do these compare or contrast?" "How are these alike or different?" Or, "How did A..." and "How did B..."). One of my more advanced students drafted prefocused comparison/contrast maps in preparation for comparing two short stories. She used key words on the branches in response to her questions in an effort to generate enough information for a fifteen page paper. (See Figure 6.) Ultimately, her thesis statement reflected the opposition the main characters experienced in relation to what society expected of them as male and female. The maps were pleasing visually; but more importantly, they served well as a plan for her paper. As of now, I do not forsee the possibility of adapting prefocused mapping to logical argumentation, but I do intend to use it for description and narration.

This technique is valuable in effecting various rhetorical development modes and also because development and elaboration of the ideas flow more naturaly when the thesis statement (nucleus) and supporting points (branches) are already clear. This aspect helps to free a student who is forever getting "stuck". I devote hours of instruction to

Fig. 6. Prefocused mapping: Comparison/contrast


individual is
society expects
1
Attitude and Caring
kind, loving
kind, loving
responsible
responsible
self-assured
self-assured
intimidated
unintimidated
How did the male character fit into society's idea of masculinity?
physical weak
physically strong
emotionally hard
emotional
2
Feeling and physical
The Androgynous Man
Noel Perrin
1
Attitude and Caring
kind, patient, compassionate
kind, patient, compassionate
independent
dependent
self-assured
self-assured
forgiving, admirable
forgiving, admirable
intimidated by husband
unintimidated
fulfilled
bored
2
Feelings
lonely, empty, frustrated.
happy, content
How did the female character fit into society's idea of femininity?
The Chrysanthemums
John Steinbeck

developing the detailed elaboration of the support points which, when complete, may comprise the body of the essay. During elaboration, as the student works from his prefocused map (thus remaining focused) I direct him to engage in the same internal, cognitive processes he used initially to generate the prefocused map. Is the material specific to this application? Does the material belong; and if so, how? Does the information fit together? If so, how? These same questions apply when I teach introduction and conclusion. The recursive nature of the writing process becomes evident as the composing behaviors are called upon again and again. This is yet another benefit of using the prefocused mapping technique. The student becomes aware that writing is exploring, thinking, and discovering. "Nothing is etched in stone" as the writing conforms to what is discovered during the process.

Finally, the map easily transfers into linear form. If during the early stages the map has become too cluttered or if the student prefers, I encourage the student to list the branches and sub-branches in linear form. Sometimes this makes the process of abstracting the thesis statement easier. Thus, Figure 4, for instance, becomes:

What are the keys to communicating and becoming educated?

1. Attitude
Being determined is a key

2. School
Being able to express yourself in writing is a key
Reading is a key
Studying and speaking out loud
    Learning about other cultures
    Being articulate is one of the keys

3. Social
Finding more educated friends

At this point in this "transposed" linear form, it is beneficial to provide a lesson on the concept of providing a balance of sub-topics. Then formatting this information into an outline is more natural.

It is clear to me that I am just scratching the surface of the uses of prefocused mapping. Since the winter of 1987, I have used it with students who just want to understand and organize what they think about certain topics, who are setting up their investigations for research, and who want a specific way of recalling information read in their textbooks. Also, it is effective as a reading comprehension tool for essays read in English class or in other courses.

Why Doesn't Key Concept Mapping on the Narrowed Topic Work for My Developmental Students?

Throughout the entire time that I was developing my prefocused mapping technique, I wondered why my students needed questions, phrases, and sentences, for the most part, rather than key words when mapping their narrowed topics. I mapped out Tony Buzan's book, *Use Both Sides of Your Brain*, in order to study it. The problem seems to stem from his assumption that, since the brain deals in and with a network of key concepts, people should map using key concepts. He states:

> If the brain is to relate to information most efficiently the information must be structured in such a way as to "slot in" as easily as possible. It follows that if the

> brain works primarily with key concepts in an interlinked and integrated manner, our notes and our word relations should in many instances be structured in this way rather than in traditional "lines" (pp. 87-88).

Who will structure our notes and word relations? Us... all of us, evidently. Buzan (1976), however, does not seem to address the issue that people differ in terms if cognitive ability levels. Therefore, they differ in their ability to map in "key" form and manipulate the information into order and sense for planned writing pieces, or for other purposes, I suspect. There are, then, varying degrees of facility apparent during the encoding process. Encoding, according to Moffett and Wagner (1976) in their theory of discourse, involves composing or formulating thoughts into words, and writing or transcribing.

Looking closer, I noted that Buzan was placing emphasis on mapping key concepts for the purpose of understanding print. Understanding print translates into comprehension, which is, according to Moffett and Wagner's theory, the decoding of words into thought. Indeed, the sizeable number of people, who struggle with "naturally" encoding key word maps and ultimately produce incomprehensible products when preparing to write a structured piece, will benefit little from trying to decode or comprehend their ideas in such a muddled form.

Even if reading and writing are not viewed as the separate and distinct acts of decoding and encoding, but intertwined in that both involve the creation of meaning and that one's own writing must be read, varying levels of competence will be evident. Once again, there will be a large segment of the population who struggle while creating meaning through writing and reading that writing in the course of planning for a formal written piece. Single-word associations branched from a focus word wouldn't seem to be the answer.

How prefocused Mapping Prepares the Way for Academic Success

John Dewey (1938) stresses that an educational experience is valuable in terms of its potential to ensure future successful, educational experiences. This prefocused mapping strategy creates a learning experience which facilitates future, successful experiences. The student not only stands to improve in writing for composition class as the term progresses, but also can apply this technique when writing papers for other courses.

Dr. John Bransford, a renowned cognitive psychologist, stressed a philosophy similar to Dewey's specifically for developmental learners when he was interviewed by Kenneth Jenkins (1986). Bransford stressed that learning strategies particular to organized knowledge bases must be transferrable to new settings. Also, he specified that an individual knowledge base should be taught in a concentrated manner with the emphasis on quality, not quantity, so that through analogy this knowledge base could be enlarged and applied elsewhere in academics.

The knowledge base for basic composition that my students gain through the sessions on prefocused mapping is substantial. It is my hope that it will prove to serve as a supportive, yet flexible, framework for successful augmentation for transferral of knowledge in the content area writing required throughout their college years.

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Author Notes

I took the liberty of altering these maps to present a comprehensive view of the typical maps made by my students.

I wish to express my deep appreciation to Dr. James Quina of Wayne State University and Mrs. Janet Bobby of Hedford High School in Detroit, Michigan, who inspired me to write this paper.

* * *   * * *   * * *

Scharfer Voreingestellter Entwerf: Eine bearbeitende Methode fuer den Entwicklungsschriftsteller.

Entwicklungsschriftstellern, bekannt wegen ihren Gedankensplitters, brauchen eine bearbeitende Methode, um ihr Thema scharf einzustellen. Eim Entwurf im voraus scharf einzustellen (ein veraendertes Modell von "Mapping", siehe Buzan, 1976) hilft den Studenten am Plan zu halten, wenn sie Ideen fuer die Aufsetze ueber ein beschraenktes Thema erzeugen. Die Studenten folgen schrittweise einem bestimmten Plan, durch den das ganze Gehirn verwickelt wird. Er Beguenstigt ihnen, genauer und verstaendlicher zu werden, und verwendet die Erkenntnis in komplizierten und kritischen Denkfaehigkeiten. Dieses wandelungsfaehige Instrument passt sich gut auf verschiede intellektuelle Niveaus, die Stile der Rhetorik, und die Schreibarten, wo Ideen klar artikuliert werden muessen. Eine von den bedeutesten Staerken diesser Methode liegt an seiner Faehigkeit, eine fuer die Studenten kuenftige und erfolgreiche Erfahrung im Lernbereich zu uebermitteln und gewaehrleisten.

La Cartografía Pre-centrada: Una estrategia practible para escritores en formación.

Los escritores en formación, se evidencian por desacarriarse fuera del punto, por lo que necesitan una estrategia practicable para mantenerse centrados. La cartografía (Buzan, 1976), mantiene a los estudiantes sobre el punto cuando estan generando ideas para ensayos sobre temas específicos. Los estudiantes siguen ciertos pasos que involucran la actividad del cerebro integrado. Así se benefician llegando a ser mas específicos y coherentes, y por utilizar destrezas propias del pensamiento cognitivo y complejo-crítico. Esta versatil herramienta se puede adaptar bien a diferentes niveles de sofisticación, modos de desarrollo retórico, y en situaciones en que se necesita al escribir, articular claramente las ideas. Una de las cualidades mas significativas de esta técnica reside en su habilidad para transferir y asegurar el futuro, exitosas experiencias de aprendizaje para los estudiantes.

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Releasing Reserve Capacities

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Abstract. This quasi-experimental study investigated the use of Suggestopedia in teaching English as a second language to white females in a teacher college in South Africa. There were no pretest differences in English proficiency, cognitive skill (IQ) or attitudes toward English. Both experimental (N=15) and control (N=16) groups received 33 hours of English instruction. The experimental group showed significant pretest to posttest gains in English proficiency and IQ, but not in course attitude. The control group showed no significant changes. As a conclusion, Suggestopedia could fulfill a vital role in improving education in South Africa.

* * *   * * *   * * *

Introduction

English as a second language is introduced as medium of instruction in Grade 5 in Black schools in South Africa. In many of these classes a breakdown in communication between teacher and pupils results at this point. Two factors contribute to this situation. On the one hand the pupils know so little English that they do not understand sentences like:

Where is your home?
Have you come far?

On the other hand the teachers' proficiency in English does not enable them to simplify sufficiently to match the understanding of the pupils.

Several solutions for this crisis have been proposed. The solution that INTUS (Institute for Language Teaching, University of Stellenbosch) has adopted is to improve the teachers' proficiency in English as rapidly as possible. Teachers would then be able to meet the pupils' needs, would teach English better and their teaching in general would improve.

Such rapid improvement can, however, not be achieved by conventional methods. After 10-12 years' traditional tuition in English as school, plus two at training college, researchers found that the proficiency level of teachers in KwaZulu was still at approximately level 5 on Brendan Carroll's scale.

An accelerative method, a method that would release the reserve capacities of the pupils, had therefore to be found. The Institute for Language Teaching has been researching the effectivity of Suggestopaedia as an accelerative method and its application in the South African situation from 1976. The experiment that I will describe was one in a series of such experiments. It was conducted with white teacher trainees for reasons which will be indicated later. The English proficiency of these trainees was on an average one band higher than that of trainees in KwaZulu.

Hypotheses to be investigated

The following hypotheses were formulated and investigated in the experiment:

1. Students' proficiency in English would be raised from an average of Band 6 to Band 7 on Carroll's Scale by means of Suggestopedia.

2. Student's cognitive skills would improve significantly as a result of instruction by means of Suggestopaedia.

3. Students' attitude toward English would be improved significantly by means of Suggestopaedia. Krashen sees attitude towards the TL (target language) as a major determinant in L2 (second language) acquisition. This factor therefore has great relevance for upgrading students' language proficiency.

Description of the Experiment

Target Population

Experimental Group

Fifteen 3rd year Diploma of Education students of a teacher's college for Whites in the Cape Province were chosen. The choice of the college was dictated by several factors. The researcher had access to the college while lengthy negotiations would be required to gain access to a Black teachers' college.

Factors contributing to the size of the experimental group were:

a. They were the only students available as the college converted to teletuition in 1987.

b. Suggestopaedic classes are ideally limited to twelve students.

The following characteristics applied to the group:

Sex: female; average age: 21.4 years; mother tongue: Afrikaans; place of residence: 4 urban, 11 rural; average IQ: 108; academic qualification: matriculation; professional training: completing 3rd year of Junior College or Senior Primary course at Denneoord College; course taken: Junior Primary 11, Senior Primary 4; average band of proficiency in English on Carroll's scale: 6.38

All were taking English as a second language, and as all had passed English as L2 in the second year at college, they had average competence in English.

Control Group

17 3rd year Diploma of Education students of a neighboring college, Paarl Teachers' College, were selected as no students were available at Denneoord to serve as a control group. The two colleges are similar in the following respects:

- both are situated in small, predominantly Afrikaans speaking towns,
- the medium of instruction in both colleges is Afrikaans,

- both use the same Junior Primary and Senior Primary English syllabuses for colleges of the Cape Education Department,

- the English examinations of both are moderated by the University of Stellenbosch to ensure similar standards,

- both write the same English bilingualism paper in the final year, which influences the teaching.

The samples could not be selected on a random basis as they had to be in one institution in order to receive instruction and there were only fifteen students available at Denneoord Teachers' College. It will therefore not be claimed that the findings of the experiment have universal significance.

The control group subjects could be described as follows:

Sex: 16 female, 1 male; average age: 21.05 years; Mother Tongue: Afrikaans; place of residence: 5 urban, 12 rural; average IQ: 109; academic qualification: matriculation; professional qualification: completing 3rd year of the Junior of Senior Primary course at Paarl College; course taken: 9 senior primary, 8 junior primary; average band of proficiency in English on Carroll's scale: 6.43

All were taking English as a second language, and had passed it in the second year at college. They therefore had average competence in English.

Description of Instruction

Texts

The text used by the experimental group was the Afrikaans suggestopaedic text that Dr. D. L. Botha, lecturer at Cape Town Teachers' College, had written for the first-year students of Cape Town Teachers' College. Mrs. M. Swart and Dr. Odendaal translated it into English and adapted it to the language level of third-year college students.

The control group used as texts:

Cry the Beloved Country, by Alan Paton,

Romeo and Juliet, by Shakespeare

101 Dalmations, by Dodie Smith

Living English Structure, by Sannard Allen

Second Language Learning Techniques, by H. Askes,

The Argus Newspaper

Length of Instruction

Both experimental and control groups received instruction for 33 hours. The experimental group had 1.5 hour sessions every day for four and a half weeks from 4 August to 4 September.

The control group had five 35-minute classes per week from 4 August to 23 October.

Method of Instruction

1. The experimental group.

During the 22 1.5 hour sessions of instruction 10 Suggestopaedic cycles were presented. The conventional structure of Suggestopaedic cycles was observed.

2. The control group.

Tuition was given as follows: 2 periods per week (70 minutes) were devoted to literature study. The prescribed books were read and discussed in class. Two more periods (70 minutes) per week were devoted to language study. During the fifth period the Senior Primary students received tuition in Didactics.

Means of Data Collection

The following tests were administered before instruction commenced and immediately upon completion of the courses:

Brendan Carroll GAD 1 English Proficiency Test

The General Advanced Test was devised by Brendan Carroll for testing communication. It has been standardized and is used in many countries to test communicative competence. In accordance with recent emphases, it tests communication (use) rather than the traditionally emphasized formal accuracy (usage) and specific rather than general language skills.

C. Kitching's English Proficiency Test

This test was developed for Afrikaans-speaking college students, i.e. a target population similar to that of the experimental and control groups.

H. L. Botha's Opinionnaire

This attitudinal scale developed by Dr. Botha was based on the Likert Method (Botha: 230).

New South Africa Group Test for measuring IQ.

Was administered by a researcher of the Bureau for Student Counselling of the University of Stellenbosch.

Questionnaire on Suggestopaedia Course

This questionnaire was devised to record the experimental testees' reactions to the Suggestopaedic course. It covered most aspects of the Suggestopaedic course and subjects could respond positively, neutrally, or negatively.

Evaluation of Subjective Sections of Tests

To ensure maximum objectivity, the free-writing sections of the Carroll GAD - 1 test and the Kitching test were scored by an English teacher of a neighbouring High School.

Summary of Data

Subsequently the pre- and posttest scores of the Kitching Proficiency Test (KPT), Carroll Proficiency Test (CPT), and the Botha Opinionnaire (BO) were transformed to percentages and the average for each group determined. The difference between the average score of the pretest and that of the posttest indicated the average improvement or deterioration of each group during the test period.

Tables 1 through 4 present the average percentage scores for the pre- and posttests of the experimental and control groups in the different tests.

Statistical Analysis of Data

For the Botha opinionnaire, Kitching test and IQ test, the *t*-test for paired comparisons was selected (McGhee, 1985, pp. 374-377).

Table 1. Average percentages on pre- and posttests of the experimental group for the Kitching proficiency test, the Carroll proficiency test, and the Botha opinionnaire (N=15).

Test	Pre	Post	Difference
KPT	57.9	66.6	+8.7
CPT	59.4	66.1	+6.7
BO	47.6	57.0	+9.4

Table 2. Average percentages on pre- and posttests of the control group for the Kitching proficiency test, the Carroll proficiency test and the Botha opinionnaire (N=16).

Test	Pre	Post	Difference
KPT	56.9	58.1	+1.2
CPT	60.1	59.7	-0.4
BO	46.3	47.2	+0.9

Table 3. Average IQ scores on the pre- and posttests of the experimental group (N=14).

Score	Pre	Post	Increase
Non-verbal	108.9	113.5	+4.6
Verbal	107.0	116.6	+9.6
Total IQ	108.1	116.1	+8.0

Table 4. Average IQ scores on the pre- and posttests of the control group (N=16).

Score	Pre	Post	Change
Non-verbal	109.8	110.5	+0.7
Verbal	108.2	103.1	-5.1
Total IQ	109.3	106.9	-2.4

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* * * * * * * * *

Analysis of the Differences between pretests of Experimental and Control groups.

In order to establish whether there was any statistically significant difference between the English proficiency, the IQ and the attitude of the experimental group and th control group at the commencement of the experiment, viz. whether any comparison between the two groups would be valid (or justifiable), the pretest of the Kitching test, Carroll test and IQ test of the control and experimental groups were first compared statistically. Table 5 presents the results of these analyses.

According to the pretest statistical analyses, there were no significant differences between the experimental group and the control group on the English proficiency or the IQ tests.

Table 5. Data for *t*-tests on the difference between pretests of Experimental and Control groups.

Test	*t*	*p*	Significance
Carroll	0.329	0.744	no
Kitching	0.322	0.750	no
Non-verbal IQ	0.212	0.834	no
Verbal IQ	0.360	0.721	no
IQ total	0.360	0.721	no

* * * * * * * * *

T-test Analyses between groups

Subsequently the differences between pretests and posttests of the experimental and control groups were subjected to *t*-test analysis. Results are shown in Table 6.

Testees' personal impressions of the experimental course

Qualitative data were obtained by means of a questionnaire. Descriptions of the course are provided in Table 7.

The main statements made by the questionnaires could be summarised as follows:

1. The subjects' response to the course as a whole was strongly positive. Out of a possible 476 responses, 21 were negative.

2. Great joy was generated during and seemingly by the course. This correlates with the observation and experience of the lecturers.

3. The tension during the learning situation was greatly reduced. Subjects were conscious of increased relaxation and loss of inhibitions.

4. Subjects said they gained self-confidence in using the language and also seemed to gain more faith in

5. Subjects' perception of their own command of the target language improved. They said they found they could think in English and one said that when she spoke English "the words just came". This impression is supported by the proficiency tests which indicated significant improvements in proficiency. But even without objective support, the subjects' improved confidence in their proficiency would be conducive to acquisition as the affective filter would be lowered.

6. Subjects experienced a more positive attitude toward English.

7. The group dynamics generated in the group promoted better social relations and three testees commented on the understanding that developed in the group.

Table 6. Findings of *t*-test analyses on pretest-posttest measures.

Measure	Experimental Group	Control Group
Improvement in positive attitude toward English (Botha Opinionnaire)	t=1.374 not significant p=0.191	t=0.222 not significant p=0.827
Improvement in English proficiency (Carroll test)	t=4.634 p=0.0000 highly significant	t=0.330 p=0.746 not significant
Improvement in English Proficiency (Kitching test)	t=5.355 p=0.0001 highly significant	t=0.782 p=0.446 not significant
Improvement in verbal IQ	t=6.051 p=0.0000 highly significant	t=1.623 p=0.124 not significant
Improvement in non-verbal IQ	t=1.954 p=0.037 significant	t=0.186 p=0.854 not significant
Improvement in total IQ	t=6.110 p=0.0000 highly significant	t=0.789 p=0.442 not significant

Conclusions

Evaluation of Hypotheses

In the light of the data that were collected, the hypotheses formulated at the outset of this investigation can be evaluated.

Hypothesis 1. Students' proficiency would be raised from an average band 6 to band 7 on Carroll's scale by means of Suggestopaedia.

This hypothesis was sustained. The average band of the students taught by Suggestopaedia, band 6.38 on Carroll's scale, was raised to band 7.1 The average band of students taught by conventional means declined from 6.43 to 6.34

Hypothesis 2. Students' cognitive skills would improve significantly as a result of instruction by means of Suggestopaedia.

This hypothesis likewise was validated. Students taught by Suggestopaedia showed a significant increase in verbal IQ and IQ total scores. There was no significant change in any of the IQ scores of students taught by conventional means.

Hypothesis 3. Students' attitude toward English would be improved significantly by means of suggestopaedia.

This hypothesis was not sustained. The attitude of the students taught by means of Suggestopaedia did improve more than that of students taught by conventional means, but the improvement was significant only at the 20% level.

Table 7. Subjects' impression of the experimental course.

Impression	Number of Subjects
One of the most wonderful experiences of my life	3
Learned without noticing it	1
For the first time I could be relaxed in a learning situation	3
It was marvellous not to have pronunciation and movements restricted	3
The atmosphere and the course were enjoyable	7
Other subjects should use these methods	2
Effective and worthwhile	2
A great success	4
Was uncertain before when speaking English; gained confidence in using it	6
Increasingly enjoyable to use English	1
Would have adopted English as MT if it had been taught like this	1
Vocabulary increased much	2
Close ties developed in group	3

Table 7 (continued).

Peripherals aroused interest	4
Whole attitude toward English changed	4
Began to feel I could succeed	2
Began thinking in English	2
Lost inhibitions	1
Enjoyed activities	1
Was emotionally involved	1

* * * * * * * * *

On the basis of the students' responses the following conclusions seem valid:

Suggestopaedia seems able to break through the barrier of fossilizations and to enable the students to think in the target language and speak with greater confidence and fluency. The findings of the proficiency tests bear this out.

Suggestopaedia seems to succeed in breaking down the affective filter that impedes language acquisition. Students experience a decrease of tension, an increase in relaxation, an increase in self-confidence and faith in their performance in the target language.

Suggestopaedia seems to generate a great amount of joy during the presentation.

Suggestopaedia seems to effect personal development. Students experienced enhanced self-confidence, better relations with their group.

Significance for Education in S.A.

In a multi-lingual country such as South Africa

- where so much teaching is done through the medium of a second language,

- where the quality of the teaching is severely affected by the teachers' command of the second language,

- where numerous and so far ineffectual, efforts have been made to upgrade the level of the teachers' proficiency in the second language (vide Bot, 1986),

- where deficient cognitive skills seem to retard learning as much as deficient mastery of the medium.

It seems that a method of language teaching which dramatically improves proficiency and improves cognitive skills could fulfil a vital role in improving education.

It could enable teachers and pupils to bridge the communication gap which at the moment paralyses the educational process for almost two years. It could liberate teachers from the traditional rote-learning didactic techniques which further inhibit learning. It could also change many teachers' perception that pupils can cope with only a small amount of subject matter.

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Das Freisetzen der Reservfaehigkeiten.

Diese Quasiexperimentalforschung untersuchte den Gebrauch von der Suggestopaedia im Unterricht von Englisch als zweiter Sprache an weissen Studentinnen auf einer paedagogischen Hochschule in Suedafrika. Es gab keine Unterschiede in den Vorpruefungen im Bereichen von der englischen Fertigkeit, der Erkennungsfaehigkeit oder in ihrer Haltung Englisch gegenueber. Die Versuchsgruppe (15 Personen) und die Gegenvershuchsgruppe (16 Personen) erhielten beide 33 Stunden Englischunterricht. Die Versuchsgruppe zeight erhebliche Zunahmen der Ergebnissen im Bereichen von der englischen Fertigkeit und der Erkennungsfaehigkeit; keine Zunahme wurde in ihrer Haltung des Kursus gegenueber bemerkt. Die Gegenversuchsgruppe zeigte keine bedeutsame Aenderungen. Das Ergebnis -- die Suggestopaedia wuerde eine entscheidende Rolle in der Verbessurung der Paedagogik spielen.

La Liberación De Capacidades Reservadas

Este estudio cuasi-experimental investigó el uso de la Sugestopedia en la enseñanza del Inglés como segundo idioma en estudiantes blancas en un professorado en Sud-Africa. No se predeterminaron las diferencias en la pericia en Inglés, habilidades cognitivas (C.I.) o la actitud hacia el

Inglés. En ambos grupos, el experimental (N=15) y el de control (N=16), se impartieron 33 horas de instrucción de Inglés. El grupo experimental mostró una significativa diferencia entre la prueba al comienzo y al final de pericia en Inglés y en C. I., pero no en la actitud hacia el curso. El grupo de control no mostró cambios significativos. Como conclusión, puede decirse que la Sugestopedia podría desempeñar un papel vital en el mejoramiento de la educación.

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Personality of Teachers Using SALT

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Abstract. This experimental study was a follow-up of teachers who had been trained in SALT techniques at Iowa State University to determine the personality characteristics of full users versus partial and non-users of SALT. The Cattell 16 Personality Factor (PF) Test had been administered during the training workshops, and follow-up usage obtained from a mail questionnaire. Teachers yet using SALT (n=50) were significantly ($p < .02$) more imaginative and more trusting than partial or non-users (n= 26).

* * *   * * *   * * *

The purpose of this study was to follow up on teachers who had been trained in SALT (Suggestive Accelerative Learning Techniques) at a professional training workshop, and then to determine the personality characteristics of teachers who used SALT in their classes afterwards versus those who did not.

Teacher training workshops in SALT techniques have been given since 1976 at Iowa State University. Typically the workshops have been conducted by the author or occasionally by one of his colleagues. As part of this 40-hour teacher training workshop, teachers are asked usually asked to take the Cattell 16 PF Test (IPAT, 1969).

The 16 PF Test is a very widely used test for normal adults in the United States. The test, developed by R. B. Cattell, purports to measure comprehensively the personality of normal adults in the United States. The follow-up data were originally collected in 1985 with Martha Reed, (1985) as part of a survey asking teacher graduates of the workshop about the workshop itself. In addition, the follow-up respondents were asked to identify the extent to which they had used SALT in their teaching subsequent to the workshop. The response format was: used all of the techniques, used them partially, or were not using. Some respondents were not available and some 30% did not return their follow-up questionnaire. On the response survey, 50 users had checked that they had used all of the SALT techniques or most of them. Fifteen people said that they used the SALT techniques some or a little of the time. Eleven of the respondents said that they did not use the SALT techniques for a variety of reasons.

The respondents were categorized: full user, partial user, or non-user. The analyses of the 16 PF Test profiles were run for the SALT users versus the low and non-users combined and also for SALT users versus the non-users only.

The results are presented in Table 1 whch gives the means and standard deviations along with the Student T-test results evaluating the difference between means. There were two scales out of the 16 where the averages were significantly different for the SALT users vs. the low & non-users group. As can be seen in Table 1, the SALT users were significantly more trusting (L scale) than were non-users. In addition, the SALT users were significantly more imaginative (M scale) than were the low and non-users combined. As a subsidary analysis, the non-users group was also sigificantly more practical than the SALT users group.

Table 1. Means and Standard Deviations of L and M scales from 16 PF Test.

Description	Ave.	S.D.	*t*	*p*
L, Trusting vs. Skeptical:				
SALT users (n=50)	4.14	1.92		
vs. Low and Non-users (n=26)	5.27	1.76	2.51	0.02
M, Practical vs. Imaginative:				
SALT users (n=50)	8.10	2.02		
vs Low and Non-users (n=26)	6.65	2.55	2.70	0.01
vs. Non-users only (n=11)	6.64	2.62	2.06	0.05

* * *   * * *   * * *

With 16 scales and 16 *t*-tests, one would expect that at the 5% level that approximately one of these tests would have been significant by chance alone. Note, however, that one *t*-test was significant at the 2% level and the other at the 1% level. Thus, out of 50 such tests, we would have expected to have found just one of these significant by chance alone. Therefore, there is some confidence that both of these findings probably would be replicable. Of course, this would have to be done for verification.

Of interest is the fact that there were several near-significant trends ($p<.10$). There was a trend for the SALT users to be more tender-minded (the I scale), to be more cheerful (the F-scale) and to be more self-sufficient (Q-2 scale) than non-users (n=11).

In summary, this study follwed up on teachers who reported themselves to be SALT users (n=50) versus respondents who reprted themselves to be low or non-users (n=26). The criteria were the 16 personality scales in the Cattlell 16 PF Test. The teachers who reported using SALT were significantly more trusting and imaginative than partial users or non-users. This finding should be interesting to teachers pondering SALT training, and to psychometricians wondering about selecting "good" SALT teachers.

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Die Persoenlichkeit der Lehrer, die SALT verwenden.

Diesen Bericht hat die Lehrer, ide in der SALT-Anwendung auf der Iowa State University trainiert worden waren, nachgeforscht, um zwischen den Persoenlichkeiten zu unterscheiden, die die SALT-Methode brauchten, teilweise oder gar nicht brauchten. Die Cattell-Pruefung

von 16 Persoenlichkeitsfaktoren wurde waehrend des Trainierungsseminars gegeben. Nachher wurde die Anwendung von SALT durch eine Postumfrage festgestellt. Die Lehrer die SALT noch brauchten (50 Personen) waren im erheblichen Mass ($p < 0.02$) schoepferischer und vertrauensvoller als die, die (26 Personen) SALT nur teilweise oder gar nicht brauchten.

Personalidad de los Profesores Que Usan S.A.L.T.

Este estudio se orginó como un seguimiento de los profesores que fueron entrenados en las técnicas de S.A.L.T. (Técnicas de aprendizaje y enseñanza acelerados) en la Iowa State University, para determinar las características de la personalidad de los usuarios plenos, en comparación con la de los usuarios parciales y no usuarios de S.A.L.T. El test de factor de personalidad Cattell 16 (PF) fue tomado durante los talleres de entrenamiento, y el seguimiento se realizó a traves de cuestionarios enviados por correo. Los profesores que aún utilizan S.A.L.T. (N=50) resultaron significativamente ($p < 0,02$) más confiables que los usuarios parciales o no usuarios de estas técnicas (N=26).

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Applications of Peak Performance/Accelerated Learning Approaches to Vocational Education

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Abstract. Performance is a key component of vocational education, and that is why this research effort has been undertaken. Nationally, as well as within the state of Minnesota, there is an increasing demand for performance as an outcome of all education . Achieving this outcome is especially challenging because demographics are indicating that the populations needing education in the near future will be dissimilar from those being served today. They will require additional help and other approaches to successfully complete educational programs and achieve their goals as productive citizens. In looking for ways to provide needed instructional support, the researchers have chosen to examine areas outside education as well as within, noting that changes or advances within a field or discipline are frequently triggered by events from outside that field or discipline. It is this research that has lead to the goal of developing a model or models of peak performance/accelerated learning that would have application for vocational education. This paper may be viewed as a status report of activities which have been accomplished in an ongoing, developmental project intended to increase learning efficiency and effectiveness.

Introduction and Background

Staff of the Minnesota Board of Vocational Technical Education have been involved for the past four years in the study of applications of peak performance/accelerated learning research to vocational education. The work to date has included preparation of a preliminary review of literature, a workshop with selected staff from the technical college system to present concepts and strategies and obtain input/feedback from them, presentations at professional conferences (including Minnesota SALT), dialogue with other persons involved in accelerative learning approaches, continued review of literature, and formation of a small cadre of state agency staff to support, share, study, question and develop interest in peak performance/accelerated learning approaches. The path has not been smooth, steady, or straight, but it has been interesting, stimulating, and challenging; and it has brought us into contact with creative, ingenious people who are also seeking ways to improve the teaching/learning process.

Why this research study?

One of the major factors underlying this study is the dramatic metamorphosis taking place in the population characteristics of the United States, and the effects of these characteristics on education. In a study of educational demographics, Harold Hodgkinson (1985) reported some of the sweeping changes which the educational system will encounter by the year 2000. These changes, in number and composition, are likely to stress the educational system as it has never been stressed before, at a time when it will be critical for more students to successfully complete their education than has previously been the case.

Among others, Schaller (1987) noted the growing emphasis being given to performance as an emerging societal expectation. This is evident as well in consumer expectation of quality products and services in those things which they purchase. America's position in the economic world of the future may well depend in large measure on improvement in the performance component. As other nations become more competitive, the development of a "world class workforce" will become increasingly important to the United States if it is to maintain the standard of living to which its citizens are accustomed.

A third factor contributing to conduct of the study is an evolving trend related to the increasing rate of technological change. It is now projected in the literature that the average person will change jobs from six to eight times during his/her working life. When combined with projected shortages of skilled workers, changes of that frequency will require increased educational efficiency and effectiveness in order to meet demands of business, industry and citizens.

In summary, three factors have been instrumental in influencing the development and implementation of this research effort: 1) demographic changes in the population in terms of number and composition which will impact the educational system and the workforce; 2) increasing societal expectations concerning performance; and 3) projected shortages of skilled workers and the changing nature of work.

The Concept.

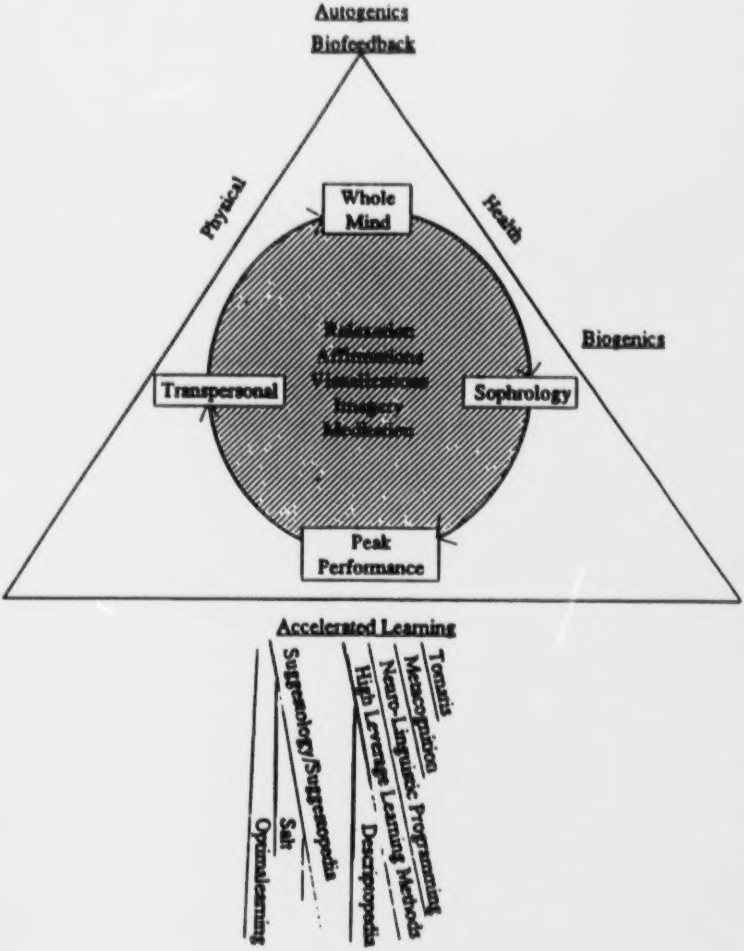
What is the concept?

One of the first discoveries made through the review of literature was that there were no universal terms or definitions for the concept that we tended to associate with a "new approach to learning." It was possible to identify a number of "labels," but distinguishing differences among the approaches or concepts they represented was a difficult task. It became necessary to develop a glossary of terms so that we could communicate among ourselves and others. The glossary, which was compiled by Kaye Storey (1987a), helped provide a common basis for understanding the terms we were encountering and using.

Another process used to analyze and build understanding of the literature was the construction of a conceptual framework (Storey, 1987b) that illustrated the relationships of the ideas that had emerged. The framework was used to organize the approaches, strategies, and concepts that appeared to be relevant, so that we could begin to sense the scope and dimensions of the work that had been done. This preliminary depiction is shown in Figure 1.

The framework reflects the learning approaches described in the literature, and it represents possible relationships among these approaches. It highlights the interactions of "mind" and "body" that seemed to lead to peak performance and accelerated learning. It also attempts to show how ideas have evolved or are evolving as more is learned about them.

Fig. 1. Conceptual framework developed for Minnesota Board of Vocational Technical Education study of learning approaches (Storey, 1987)


Autogenics
Biofeedback
Physical
Health
Biogenics
Whole Mind
Transpersonal
Sophrology
Peak Performance
Relaxation
Affirmations
Visualizations
Imagery
Meditation
Accelerated Learning
Tomatis
Metacognition
Neuro-Linguistic Programming
High Leverage Learning Methods
Desuggestopedia
Suggestology/Suggestopedia
Salt
Optimalearning

In our view, the early work in developing the glossary and conceptual framework supported the use of the terms, "accelerated learning" and "peak performance." Since that time, the terms have been considered key ideas underlying our research effort. After lengthy conversation and discussion, we settled on the following definitions as ones we could work with and use to communicate the concept to others:

1. accelerated learning -- all the learning systems that work holistically to develop reserves of the mind and body.

2. peak performance -- the integration of mental and physical aspects of human functioning that contribute to a performance which is personally satisfying and surpasses everyday expectations.

What is the history/background of the concept?

It was not the purpose of this study to compile a historical account of how the approach came into being, but this background does provide some interesting sidelights. The following discussion is not intended to provide an in-depth, comprehensive overview, but rather to highlight activities which contributed in various and diverse ways to the development of peak performance and accelerated learning approaches.

Perhaps the earliest spark contributing to this research interest occurred in 1980 when one of the investigators purchased a copy of *Superlearning* (Ostrander and Schroeder, 1979) for $1.07 at a bargain sale in a local bookstore in St. Paul, Minnesota. The book provided information about developmental activities happening in Europe, primarily in the Eastern Bloc nations. It seems, from our review of Ostrander and Schroeder's account and other literature, most programmatic development efforts started there.

One of the first persons in the United States to study and write about peak experiences was Abraham Maslow (1970). His work was referenced frequently by later writers and may have served as a stimulus for study of peak performance. Smith (1971), in a book addressing educational and training systems, included a reference to mental practice (visualization) dating from 1960. Garfield and Bennett (1984) described how the National Aeronautics and Space Agency (NASA) used components of peak performance/accelerated learning as part of astronaut training. Garfield and Bennett used the term "feed forward" to describe the preparation of the astronauts to carry out tasks in situations which no human had ever been in before. Both Ostrander and Schroeder (1979) and Garfield and Bennett (1984) reported on the success of the Soviet Union and East Germany in the 1976 Olympics, and how those countries attributed their success to revolutionary training techniques involving "mental training sessions." The work of Elmer and Alyce Green (1977) in the area of biofeedback was referenced frequently as contributing foundational work to the peak performance concept.

It was our observation that much of the early interest and study concerning peak performance in the United States emerged in the sports and health fields. Numerous centers across the country look at aspects of peak performance and seek how to improve performance. Unlike the Soviet Union and East Germany, where these are government supported, those in the U.S. appear to develop as the result of individual interest or a perceived need by a group, organization or department of an institution of higher education. Much of the work in the health field seems to have evolved in the same manner.

Generally speaking, educators in the United States seem to have been slower in studying and using accelerative learning approaches than those in some of the European nations. However, this appears to be gradually changing as more educators employ components of accelerative learning/teaching, and as professional organizations such as the Society for Accelerative Learning and Teaching, Inc. (SALT) have evolved.

What credibility does it have?

To rephrase an old statement, credibility, like beauty, is in the mind of the beholder. The task of proving credibility is made more difficult because many persons have some understanding or awareness of certain elements or aspects of the concept, but have not addressed the entire concept. Persons who have developed related strategies or conducted research may not even be aware that their work has provided support for components of a concept that we have termed peak performance and accelerated learning.

It is not our intent here to present a comprehensive list of individuals who have in some way contributed to the development of the concept, nor would we be able to do it. It is not even possible here to list the works of all those persons or organizations which have come to our attention and have influenced our thinking. The list would include Abraham Maslow, Norman Cousins, Herbert Benson, Charles Garfield, Eugene F. Gauron, The National Aeronautics and Space Agency and the Phi Delta Kappa Educational Foundation. Our thinking has also been influenced by dialogue with many persons who have an interest in peak performance-accelerative learning/teaching approaches and have been practicing it in their work.

What are some examples of the concept?

Three examples have been selected as representative of the peak performance concept. The emphasis of each of these examples is not on psychomotor skills, as may be expected, but rather it is on mental training techniques or strategies used in developing peak performance. These components of what we have termed peak performance are quite similar to those integral to accelerated learning approaches. This was first noticed in the review of literature, which showed that the characteristics of interest were components of both the concepts of peak performance and accelerated learning.

Garfield and Bennett (1984) identified six lessons which they believed should be accomplished consecutively, completing all the work in each one before moving on to the next (pp. 5 and 6). The lessons include:

1. *Sports motivation analysis* (discovering the "you" who can become a peak performer)

2. *Unveiling your mission* (goal-setting techniques for fully actualizing your athletic ambitions)

3. *Voluntary relaxation* (developing the primary skill for controlling concentration and physical intensity)

4. *Mental rehearsal* (using the powers of the mind to perfect your performance)

5. *Athletic poise* (maintaining peak performance feelings)

6. *Letting go* (turning over the controls to your internal peak performer)

Gauron (1984) included seven major psychological skills for a comprehensive mental training program (pp. 5 and 6). These skills include:

1. *Attention control* (concentration--on one point)

2. *Emotional control* (managing feelings)

3. *Self-rejuvenation and energization* (learning how to energize yourself)

4. *Body awareness* (skill to scan and read your body)

5. *Developing and maintaining self-confidence* (belief in yourself)

6. *Programming the unconscious mind* (use of mental imagery)

7. *Cognitive restructuring* (changing or redirecting your thoughts)

Loehr (1983) developed an "ideal performance state construct" comprised of twelve distinct feeling categories. The categories were "considered reflective of the ideal internal feeling climate for performing optimally." The twelve categories were:

1. Physically relaxed (feeling of looseness in the muscles)
2. Mentally calm (sense of inner calmness and quiet)
3. Low anxiety (anxiety undermines performance)
4. Energized (feelings of joy, challenge, determination
5. Optimistic (feeling positive about self)
6. Enjoyment (having fun)
7. Effortless (mind and body working in harmony)
8. Automatic (playing by instinct)
9. Alert (heightened awareness)
10. Mentally focused in present (attentional control)
11. Self-confident (inner belief of being a good performer)
12. In control (controlling the situation)

Loehr suggested three sample mental training strategies as a means of accelerating control of the categories comprising the ideal performance state. These were:

1. Awareness training (helping athletes see the relationship between ongoing feeling states and corresponding levels of performance)

2. Emotional rehearsal training (enabling athletes in rehearsing the feeling climate related to their best performance)

3. Matching training strategies to ideal performance state deficiencies (prescribing appropriate training strategies for deficiencies identified)

What are Potential Applications to Vocational Education?

It is perceived by the investigators that the peak performance/accelerated learning approach would have application to the broad spectrum of instructional programs in vocational education. However, given the complexities of the change process and the resources which would be needed to effect change, attempting change on a large scale does not seem feasible. Rather, implementing pilot efforts designed to serve women, minorities, and older workers has been identified as being the most appropriate way to start. Agency and system staff responsible for special programs serving these populations have been particularly interested in participating in such a venture, and it is anticipated that the teaching of prevocational and basic skills, general education and related subjects, and shop and laboratory courses could all incorporate the peak performance/accelerated learning approach. If this were done, it is believed that benefits to be derived from using the approach would include an increase in learning efficiency, a decrease in the number of dropouts, and increased satisfaction on the part of the students with the learning experience.

The Project

What the project is/is not

From its beginning, the project has been viewed as a developmental effort designed to provide the technical college system with another instructional resource for educating students. It was not perceived by the investigators as a panacea or a cure-all for the ills of the technical college system. Likewise, it is not presented as the one best method.

It may, however, represent a paradigm shift, because it emphasizes excellence in performance as a basis for improving educational practice. It is seen as having potential for helping the increasing number of disadvantaged students who will be entering the technical college system in the near future successfully complete their courses or programs of study.

Where does the effort go from here?

The project continues to be viewed as a long term, multi-year effort. During its initial phases, the emphasis focused on the review of research, model development and feasibility testing. Time was also spent identifying technical college staff who were interested in the concept, willing to become involved in learning more about it, and perhaps in a later phase become involved in pilot testing selected aspects of the concept. The initial goals set forth for the project were accomplished, but they will also continue to influence succeeding phases. It became evident that we had only "scratched the surface" of understanding and had not achieved a breakthrough! However, we have been pleased, excited, and challenged by what has been found and the potential it seems to have for providing alternatives for current educational practices.

As the project moves into a second phase, more effort will be directed toward involving other persons. We will continue to meet, dialogue, observe, and share with other persons interested in or involved with the concept. In addition, we are working with a group of selected agency staff to learn and enlarge understanding and to increase support. It is our intent also to continue to develop a small cadre of technical college staff who can learn, work with the concept, develop materials and procedures, share experiences, and serve as catalysts in the change process.

The development of evaluation criteria and approaches also needs to be addressed. And as is true of most research efforts, time will be spent seeking resources to continue the effort.

Bits and pieces--some observations and thoughts

While it is too early in the project to state any findings, conclusions or recommendations, the investigators have some thoughts or observations to share which may be of interest to persons interested in the concept of peak performance/accelerated learning. These may be found helpful in defining, describing and bringing substance to the concept. The observations and thoughts are not listed in a particular order, and they are not intended to be inclusive. Rather, they are representative in nature.

1. Relationship between peak performance and accelerated learning. The components or elements comprising what we have defined as peak performance and accelerated learning are surprisingly similar. The statement "mental training techniques (or strategies) for peak performance" is used by a number of writers addressing that topic. Both peak performance and accelerated learning would be described as holistic approaches.

2. Goal orientation. A goal orientation seems to be a prerequisite for peak performance/accelerated learning. This appears to have implications for motivation, and for other factors as well.

3. Mind/body effect. Peak performance seems to be a function of mind/body interaction, resulting in its being described as "holistic."

4. The affective domain. It appears that more attention is given to the affective domain in using the peak performance/accelerated learning approach than is true of more traditional approaches. The factors involved in the affective domain appear to be both internal and external to the individual involved.

5. Energy and feelings. One aspect of the affective domain (internal-personal) is the role of energy and feelings in peak performance. This was central to most of the models reviewed.

6. Unlimited (and unknown) human potential. The review of literature suggests that limits set on human potential are essentially self-imposed or self-limiting. This topic addresses the potential power of the mind, with numerous examples from the sports and health fields.

7. The placebo effect. This thought is related to the foregoing observation concerning "unlimited human potential," and it may also have application to "self-fulfilling prophecy." Drawn from the health field, the term refers to the use of inert substances taken as medication which can "fool the mind" and assist it in healing the body. It has relevance here because observations from the review of literature indicate that previously held viewpoints need to be re-examined in terms of their use, effects, and applications within the field of education.

8. Knowing about vs. being proficient in. There is a difference in knowing about the concept of peak performance/accelerated learning and being proficient in its use. Proficiency involves an experiential aspect that is not internalized unless it is used. The way it is used also seems important; writers tend to agree that a predetermined sequence of steps be followed, and that selecting and using various ones in an ad hoc way will not result in the desired outcomes.

9. Use it or lose it. Like most other learned behaviors, the benefits of peak performance/accelerated learning are derived only as long as they are used, or for a short period of time following cessation of use. For example, one writer noted that the residual benefits of relaxation techniques last about three weeks once it is no longer practiced.

10. The myth of using a bigger hammer. It is generally agreed that peak performance cannot be forced or willed or attained simply by trying harder. While this may appear to counter many performance or learning axioms, it seems that "letting go" is a more effective approach.

11. Related to the idea of "letting go", but essential to attaining peak performance is the notion of "be gentle, but firm, with yourself." This is analogous to providing feedback to a learner. It also addresses how an individual talks to him/herself (self-talk).

Concluding Remarks

It was stated earlier that this research effort is viewed as a developmental, multi-year effort, and that involvement of technical college staff will be a component of the forthcoming phase. That phase will also include model development, staff training and pilot activities. The review of literature will be continued together with dialogue and interaction with individuals and groups and sharing what has been learned to date.

One of the dilemmas encountered thus far is that so many interesting dimensions of the concept have surfaced, resulting in numerous side trips and slower progress than had been anticipated. Because of this, serious work on model development has not begun.

It is our considered opinion, however, that potential applications of the concept of peak performance-accelerated learning to vocational education merit continued investigation. This we intend to do.

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* * *   * * *   * * *

Die Verwendugen verschiedener Auffassungen zur Hochleistung und zum beschleunigten Lernen in der Berufsausbildung.

Die Behoerde der technischen Berufsausbildung Minnesotas Leistung ist ein Kernbestandteil der Berufsausbildung; deswegen ist diese Forschung unternommen worden. Es gibt bundesweit, wie auch landesweit, eine zunehende Nachfrage der Leistung als Ergebnis aller Ausbildung. Die Ausfuehrung dieses Ergebnisses ist besonders herausfordernd, weil die Bevoelkerungsstatistik darauf hindeuten, dass diejenigen, die sich in der nahen Zukunft ausbilden lassen werden, andere Beduerfnisse haben werden, als diejenigen von heute. Sie werden Nachilfe sowie andere Auffassungen verlangen, um mit Erfolg ihre Ausbildung vollenden zu koennen und ihre Ziele als produktive Buerger zu

erreichen. In der Suche nach der Art und Weise diese noetige Ausbildung zu gewaehrleisten, haben die Forscher das Umfeld der Erziehung und der Gesellschaft in Betracht gezogen, mit der Anmerkung, dass die Fortschritte in einem Bereich oft durch Ereignisse ausserhalb des Bereichs verursacht werden. Diese Forschung hat es sich zum Ziel gemacht, Modelle der Hochliestung und beschleunigten Lernens zu entwickeln, die in Berufsausbildung verwendet werden koennen. Dieser Aufsatz berichtet ueber Initiativen, die in einem andauernden Entwicklungsprozeess unternommen worden sind; der versucht, die Leistungsfaehigkeit und die Wirksamkeit des Lernens zu erhoehen.

Aplicaciónes de Aproximaciones de Ejecución Maxima/Aprendizaje Acelerado Para Educación Vocacional.

La ejucución es una componente mayor de la educación vocacional y por esta razon la empresa de este hizo al esfuerzo de esta Investigación. En el estado de Minnesota y también en el país, hay una demanda que está aumentando de que la ejecución es un resultado de toda la educación. Este resultado es difícil de realizar porque hay indicios en las demográficas que la poblaciones que necesitaran educación en el futuro no serían la mismo de las que servimos hoy. Requeríran ayuda adicional y aproximaciones nuevas para completar programas de educación con éxito y para realizar sus objetos como ciudadanos productivos. En la búsqueda para maneras de proveer el apoyo instruccional que es necesaria, los investigadores han elegido a examinar áreas afuera de la educación en adición a los de adentro. Se notan que frecuentemente los cambios o avanzas en un campo empiezan en ocurrencias afuera de la disciplina. Es esta Investigación que ha indicado el objetivo de desarrollar un modelo o unos modelos de ejecución máxima del aprendizaje acelerado que habría tenido aplicación para la educación vocacional. Esta tésis puede ser vista como un reporte de estado de las actividades que han sido realizado en un proyecto evolucionista intentado a aumentar la eficácia y eficiencia del aprendizaje.

*** *** ***

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The Temperaments and Waldorf Education

Earl J. Ogletree

Abstract. The Waldorf Schools, founded in 1919, in Stuttgart, Germany, which have grown to 500 schools in twenty-three countries have adopted the unorthodox practice of organizing and teaching children based on their temperament. Rudolf Steiner (1925-1961), founder of the Waldorf movement, revived the ancient Greeks' knowledge of four personality types: melancholic, phlegmatic, sanguine, and choleric. He elaborated their characteristics and developed compatible education methodology to enhance the development of each child. Since a Waldorf teacher remains with the same group of children from grades one the eight, he/she becomes a quasi-parent. The continuous teacher not only gets to know the children in her charge intimately, but can have a significant influence on their moral, emotional and academic development. The use of temperaments apparently works since it has been an integral part of Waldorf methodology for seventy years. SALT teachers can use this information as background.

* * *   * * *   * * *

The variety of human personalities is as infinite as the number of human beings. The personality is neither exclusively mental nor neural, neither mind nor body, but inextricably integrated into a personality unit. The variations of personalities seem infinite. In spite of this infinity, psychologists and educators have attempted to classify the personality into type--according to masculine-feminine types, social types (introvert-extrovert) and intellectual types. Kretschmer (1925), for example, attempted to relate body type to personality. He spoke of the asthenic, athletic and pyknic body types in which the temperament influences the psychic function, giving "color" to the personality. Sheldon also defined the personality on the basis of body types--endomorph, mesomorph, and ectomorph (Sheldon, 1942). The relation of body and personality types has its origin in antiquity. The ancient Greeks used the term temperaments; the word temperament comes from "tempus", time. Human beings have different reactions to life situations in relation to their physiological development and processes. Empeodocles used temperaments to explain the differences in human qualities according to the "tempering" of the four elements: earth, water, air and fire. The predominance of one element influenced the psyche and produced the four temperaments: the melancholic, phlegmatic, sanguine and the choleric in their respective order to the elements. Galen, another Greek of ancient times, recognized the temperaments according to four principal species: the "full-blooded" or sanguine; "full-phlegmed" or phlegmatic; the "fullbiled" or choleric; and the "black-biled" or melancholic. Although modern psychologists and physiologists recognize the different mental characteristics in relation to different organic process, they do not assign any cause and effect relationship.

Although temperaments have been alluded to by Kretschmer, Sheldon, and others, Rudolf Steiner (1966) revived this ancient knowledge and applied it to education. Steiner set about not only to classify the four temperaments, but identified their qualities and the educational method suitable for each temperament.

According to Steiner, there are two basic qualities that constitute or determine a particular temperament; they are perceptiveness and persistence. Perceptiveness is the degree of awareness and sensitiveness a person possesses. This means the degree of openness to the outer world, which includes his/her capacity and rate of grasping a situation or impression. Persistence is the degree of strength, initiative, drive and force that a person possesses in "sticking to" and carrying out a task. The relationship of temperament to the qualities of perceptiveness and persistence is classified as follows:

Table I. Temperament Qualities

Melancholic: little perceptiveness and great persistence
Phlegmatic: little perceptiveness and little persistence
Sanguine: great perceptiveness and little persistence
Choleric: great perceptiveness and great persistence

* * * * * * * * *

The four temperaments are the different blendings of perceptiveness and persistence. Perceptiveness is related to the acuteness of the senses and quickness of the thinking processes. The ability to grasp, recognize and to judge is the basis of perceptibility. Whereas the power of the will and strength of inner drive are the basis of persistence.

To add to Table 1, the melancholic can be described as being a slow reactor and responder, not easily influenced by his/her environment. This is because s/he has a tendency to live in his/her thinking, particularly in the past. He/she is a perpetual worrier. His/her emotions and worries chain him/her to the past. In this sense, s/he is an introvert. On the other hand, s/he has great persistency. Once s/he takes interest in a subject, s/he holds fast to it. The melancholic seems to be overwhelmed by and lives more in his/her physical body and self more than any other temperament, directing his/her perceptions toward him/herself, rather than outward. This is perhaps why the ancient Greeks related the element earth to the melancholic. Hamlet, Richard Nixon, and Luv Ullman would be typical examples of the melancholic.

The phlegmatic is similar to the melancholic in relation to his/her weak perceptibility. He/she also is engrossed with him/herself, not with worries and past events, but with his/her metabolic and digestive system. In a picture, the phlegmatic temperament is analogous to a round, fat, but healthy body whose contentment is in eating and sleeping. Roundness is the classic form for the phlegmatic, the thin and angular form for the melancholic. The Greeks would say the phlegmatic lives in the fluid part of his/her body. The metabolic and fluidic processes of the body influence the speed and reaction of his/her nervous system, his/her senses. The relative lack of persistence is the result of introspective dreaminess and the bulk of his/her physiological structure which "keeps calling him/her back", signaled by his/her metabolic processes. He/she is not easily influenced nor consistently interested in the outer physical environment, because of his/her contentment to live within his/her own inner physical environment. Sidney Greenstreet, Alfred Hitchcock and Falstaff would be typical examples of the phlegmatic.

The sanguine temperament is quite different from the melancholic and phlegmatic. The sanguine is very sensitive to the environment and any new impressions. He lives in his/her senses. He/she is interested in any and everything and will grasp an impression in an instant, and just as quickly turn to another impression or interest. He is impressionable and changeable, each new interest is a challenge. It is because of this fickle interest that the sanguine is a quick starter and a slow or non-finisher; s/he has little persistency to sustain interest. The typical sanguine is one who at a cocktail party can shake the hands of fifty guests in fifty seconds and remember their names. He/she is sociable, generous and humorous, but somewhat superficial. Johnny Carson, Carol Burnett, and Woody Allen would appear to be typical example of the sanguine temperaments.

The choleric, like the sanguine, is highly perceptive, but differs very much in persistence, strength and will power. Whereas, the melancholic seems to live in the past, the choleric lives in the future. The choleric storms forward, hurrying ahead of the physiological time. He/she is a leader, a person of action, a doer of deeds and mover of mountains. The football lineman or fullback would be a typical picture of the choleric. He/she is a revolutionary and ahead of his/her time in contrast to the melancholic who is unable to keep up with the times. Physiologically the choleric exhibits a bull neck, resting on broad horizontal shoulders, whereas the sanguine may be slender and slight and light on his/her feet. He/she may even seem to have a "airy" appearance. On the other hand, the choleric reveals physical strength and robustness. The choleric nature has steady fast confidence and an indomitable unswerving will to complete a task against all odds. The choleric is the hot-tempered or fire temperament. General Patton, Harry Truman and Theodore Roosevelt, Othello, and Richard III are typical examples of the choleric temperament.

The following amusing verses about the four temperaments found in a old German nunnery (Hiebel, 1961) seem to summarize their characteristics well:

Lightly he springs o'er the stone
The sanguine one,
Quick and with grace.
If he trips, he cares not
With a laugh he continues his race.

Grimly the choleric kicks at the stone
Hurling it out of his way.
As he exults in his strength,
See how his eye flashes fire.

Now the phlegmatic appears
And pensively slows down his step.
"If this stone will not move from my path
I must go around it and all will be well.

Silently stands by the stone,
Brooding, the melancholy one.
Grumbling and plunged in despair
At his eternally lasting doom.
(Everett, 1961, p. 39).

The four temperaments can also be described in relation to time, ages of maturity, four seasons, etc. Table 2 illustrates some of these relationships.

The four elements indicate that the melancholic is influenced and burdened by the physical body more than any other temperament. He/she has great difficulty converting thoughts into action and penetrating the physical body with his/her personality. The melancholic may walk with a shuffle-gait, stoop shouldered, looking downward. Whereas the phlegmatic lives in the fluids, the humors of the body and is most affected by the metabolic processes than any other temperament. The sanguine lives in the emotions, his/her personality and his/her senses. He/she seems to "float" through life and has a light manner of walking. When s/he walks, s/he moves easily, pressing the weight on the forefoot. The choleric lives in the fire element, the fire of the ego. He/she lives strongly in him/herself and the outer world. He/she walks with a firm, confident gait, the main weight being on his/her heels.

The four elements are also an aspect of ancient Greek wisdom to which Rudolf Steiner has related the four entities or bodies of man (Steiner, 1964). According to Steiner man has a fourfold psycho-physical organization, which are interdependently related: 1) Physical body--composed of basic minerals; 2) Etheric body--the forces or energy of growth, regeneration, speech, and cognition; 3) Personality or soul--one's feelings, inner life, emotions; and 4) Ego--basis of thinking, reasoning, imagination and individuality (each person refers to him/herself as "I").

Steiner divided the world into four kingdoms--minerals, plants, animals and man in which the physical work is made of minerals; plants contain minerals and growth forces; animals are composed of minerals, growth forces and an inner, instinctive life (depending upon species): Man is constituted with all four elements including an ego, which distinguishes him/her from the animal kingdom. (Man unlike animal separates him/herself from his/her environment, rationally controls his/her actions and thoughts and has the powers of speech, creativity and cognition.) In regards to the temperaments, the choleric is influenced predominantly by his/her ego; the sanguine by his/her personality; the

Table 2. Characteristics of the Four Temperaments (cont.)

Positive Traits of Temperaments	Negative Traits of Temperaments
Conscious of his own worth, energetic, practical, optimistic, leader, decisive, persistent, adventurous, self-confident extrovert, strong will, objective.	Impetuous, rash decisions, lack of compassion, impatent, argumentative, hot-tempered, cruel, self-sufficient, appears reckless, domineering.
Warm, impressionable, witty, friendly, enjoyable, sociable, dynamic personality, optimistic, compassionate, personable, great starter.	Restless, weak-willed, easily excited, egotistical, emotionally unstable, no time concept, fickle, slow finisher, lack of direction, easily distracted, conceited, vain, impractical.
Self-control, dependable, witty, calm, can withstand pressure, cheerful, quiet, practical, efficient, easy going.	Slow, lazy, tease, indecisive, stubborn, indifferent, sarcastic, apathetic.
Sensitive, perfectionist, analytic, faithful friend, self sacrificing, does not easily forget a good deed.	Worrier, self-contered, pessimistic, moody, revengeful, indecisive, critical, dislikes people with different view points, slow starter, sentimental and subjective, inactive, anti or asocial, lacks a sense of humor.

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Table 2. Characteristics of the four temperaments

Four Temperaments	Four Elements	Four Kingdoms of Earth	Four Entities or Bodies of Man	Four Times	Four Seasons	Four Ages
Choleric	Fire	Man	Ego "I"	Future	Summer	Youth
Sanguine	Air	Animal	Soul (personality inner-life)	Present	Spring	Childhood
Phlegmatic	Water	Plant	Growth Body or forces "vital forces"	Present	Winter	Elderly
Melancholic	Earth	Mineral	Physical	Past	Fall	Middle age

phlegmatic by his/her metabolic system; and the melancholic by his/her physical body, and self.

The different temperaments live in different time elements. The melancholic lives in his/her thoughts and worries about the past. The present passes him/her by. He/she is like a clock that is slow. The phlegmatic and sanguine are present oriented, the past and the future are not of great concern to them. The choleric forgets the past and is impatient with the present. He/she presses forward to the future to meet a new challenge.

The four temperaments are also related to the seasons and the ages of life. The melancholic is the temperament of middle ages, the Fall of life, a greater consciousness of the gravity of life. This is the period when one looks back on one's life--the past, reflecting on the unachieved goals of life. It is sometime the period when men and women attempt to make up for their lost youth.

Old age is typical of the phlegmatic temperament. Here is the period of life when serenity is attained, a balance between outer and inner activity is reached. One retreats from outer life to inner life. It is the Winter of life.

The typical temperament of the child is the sanguine, the Spring of life. He/she is like the changeable Spring season; unsteady, fickle, cheerful and sad, hopeful and despondent, confident and depressed, laughing and crying. These are the "emotions" of Spring, the child and the sanguine.

Summer and youth characterize the choleric temperament. Summer like the choleric has its torrid heat waves and dynamic thunder storms, youth its turbulent, emotional, idealistic adventurousness.

Although each of the temperaments has been characterized in absolute terms, it would be rare to find an individual possessing only one temperament. Most people have characteristics of all four temperaments of which one or two may be dominant, one being more pronounced than the rest. Just as no two people are alike, so persons of similar temperaments would not act in exactly the same manner. The dominant temperament will be influenced by the quantity and quality of the other three temperaments. In fact it may be difficult to determine a person's temperament because of the blending action of the less dominant temperaments.

One method of determining temperament type would be to determine the weak or missing temperament. Arrange the temperaments in the following pattern, as in Figure 1.

Figure 1. Arrangement of Temperament Types.

Choleric

Melancholic Sanguine

Phlegmatic

* * * * * * * * *

A choleric will have characteristic traits of the melancholic and the sanguine, but rarely possess the traits of the phlegmatic. The sanguine will possess phlegmatic and choleric traits, but not those of the melancholic. The phlegmatic may display melancholic and sanguine behavioral patterns, but the choleric characteristics only on rare occasions. The melancholic may display behavioral symptoms of the phlegmatic as well as the choleric, but not of the sanguine. Therefore, one would attempt to discover which temperament is the weakest or is missing. The person more than likely would be the opposite temperament. If sanguinic tendencies are missing the person is probably a melancholic. Or if s/he lacks the characteristics of the choleric, s/he would be a phlegmatic.

Temperament Characteristics:

Each temperament meets and deals with problems and situations differently. What may be an overwhelming problem to one temperament is a challenge or an adventure to another. A humorous example will illustrate this point. For example, a mother tells a child s/he must learn to lace and tie his/her shoes or s/he cannot go outside.

The choleric will meet the task "head on". More than likely s/he will not listen to directions, but overconfidently s/he begins threading the laces though the eyelets with great determinations, energy and speed. If s/he does it wrong, s/he will start the process again. S/he knows how to lace and tie shoelaces because s/he has seen others do it. S/he may even examine another laced shoe, but s/he is determined to do it on his/her own. S/he might even break a lace. In this case, s/he would tie broken lace together or ask for another one. In his/her effort to complete the task, s/he may use a fork or knife to make the eyelets larger. He/she may even ruin the laces and eyelets of the shoes in the end. Undaunted, s/he will proceed to improvise and carry on the task. If all else fails s/he will rant and rage and complain about the poor quality shoe laces. He/she will not take advice. He/she will insist that his/her method of lacing and tying laces is better. The conventional method is stupid. In any case s/he will finish the job. Admiring his/her work as s/he walks out the door; s/he will insist his/her method is superior.

The sanguine will delight in the challenge and be intrigued with the process. If, at the outset, s/he is able to lace and tie the shoelaces, s/he may experiment with other methods. However, if s/he is unsuccessful, s/he will try again. If s/he totally is unable to lace and tie his/her shoe, his/her interest will wane and be diverted to other matters. S/he will view the task, whether successful or unsuccessful, as an interesting experience. Undaunted by the lack of success s/he will cheerfully turn to other interests. His/her interest is going outside will also have waned, changed to indoor events.

The Phlegmatic will have to be coaxed and persuaded to lace and tie his/her shoes. He/she will approach the task slowly and carefully with great deliberation. After surveying and contemplating the task, s/he may come to the conclusion that this is too difficult and of too little interest. The "wheels" will be spinning mentally, but there will be little motion. S/he may make one feeble attempt, if it doesn't work, interest and activity will drop to zero. S/he will probably conclude that the shoes can easily be worn without laces. Perhaps a zipper would be better. "S/he wasn't too interested in going outside anyway. "

To the melancholic the problem will be new, serious and complicated. He/she will say to him/herself: "Here is another problem, one which I don't deserve. Why must I learn to lace and tie shoes before I can go outside?" He/she will halfheartedly attempt the task. He would have enjoyed learning to tie shoe laces in his/her own time, but not now when s/he wants to go outside. The melancholic's mind is so much on his/her own misfortunes and worries that s/he has difficulty concentrating on the task at hand. S/he is slow in "catching on". S/he may say to him/herself, "This is another failure in my life. I knew I could not do it in the first place. " After several futile attempts, s/he gives up in defeat and sulks. S/he blames the shoes, the poor quality shoe laces, his/her mother, everything and everyone, but him/herself. S/he may even throw a fit. S/he will ponder over and worry about this experience for days. It was his/her mother's fault s/he couldn't go outside. "Life is so difficult. "

We have attempted to present the temperaments in a pictorial fashion as they encounter a similar situation. Table 2 (previous) shows the positive and negative traits for each temperament.

Education of the Temperaments

Steiner prescribed certain techniques for balancing the extremes of each temperament. He recommended three approaches of interest to the reader: Interpersonal relationship of teacher to pupil, methods of teaching and grouping by temperament.

According to Steiner the manifested extremes of a dominant temperament can degenerate into one-sidedness: The choleric temperament can degenerate into rage, malice and lack of self-control; the sanguine into fickleness, egoism and lack of interest in important matters; the phlegmatic into apathy, laziness and indifference; and the melancholic into gloom, moodiness, self-centeredness. The goal is to balance the temperament, to strengthen the desirable traits and weaken the undesirable one and to help the child overcome personality blocks to realize the "self" in a broad social sense.

To modify the temperament the rule is begin where the child is, based on his/her attributes, not on what s/he does not possess. Steiner (1966) states:

> If you begin with the...child by working upon forces that he does not possess, you will accomplish nothing at all. We cannot pound in something different from what his ...temperament is. We should ask: What as a rule does a (particular) temperament possess? And that is what we must reckon with. We do not alter these characteristics by trying to induce any sort of opposite quality....With regard to these qualities that are rooted in the innermost nature of man we must take into consideration that we can only bend them (pp. 40-41).

The temperament is bent and developed in a desirable direction by the relationship of adult to child or teacher to pupil. This is the key to the method. Each temperament needs a slightly different interpersonal relation and rapport with the teacher to effect a change in temperament.

Treatment of the Choleric

The choleric child can be reached through respect and esteem for a personality. The personality must be a respected authority figure, not only in deportment and deed, but knowledge and understanding as well. The teacher must be a person that can meet all challenges and overcome all difficulties and never lose his/her "cool". This will awaken in the choleric child a sense of awe and reverence for the accomplishments of the teacher.

The teacher can also help the choleric child to control and channel his/her temper and tremendous will power and drive. The child must learn that there are certain facts and obstacles in life that cannot be changed or overcome. Steiner (1966) says:

> ...it is necessary to introduce into his education what is difficult to overcome, so as to call attention to the difficulties of life by producing serious obstacles for the child. (He) must learn...to battle with the objective world (p. 45).

Steiner (1966) adds that the obstacles need not be large or important but "...obstacles pertaining to little things, to trifles:"

> If the child is made to do something on which he must expend tremendous strength so that the choleric temperament is strongly expressed but actually the facts are victorious, the strength employed is frittered away. The child gains respect for the power of facts that oppose what is expressed in the choleric temperament (p. 46).

Treatment of the Sanguine

The same treatment cannot be prescribed for the Sanguine child. But the same rule of concentrating on those traits the child possesses still applies. However the relationship of the teacher is different. The sanguine child needs a personality s/he can love, a genuine deep interest and emotional attachment. Steiner (1966) indicates:

> The child must develop this personal attachment, One must make himself lovable to the child...For one personality...experience will show that there will be a permanent, continuous interest, even though the child is ever so fickle (p. 43).

The teacher becomes a stable element in the child's life. It is through this love of a personality--the teacher--that the sanguine child's interest can be developed and sustained in other things. Steiner recommends that the teacher initially build on the child's interest and when involvement has reached a peak of high interest, the object(s) should be taken from the child. This way s/he will desire them again.

That is, do not allow the child's interest to dissipate on a subject or object, but either remove the object or change the subject when interest and involvement is highest. Later it may be given to him/her again. Steiner (1966) states:

> We should keep the sanguine child busy at regular intervals with such subjects as warrant a passing interest, concerning which he is permitted to be sanguine, subjects not worthy of sustained interest. These things must be permitted to affect the sanguine nature, to work upon the child. Then they must be removed, so that he will desire them again, and they then again be given to him...that as a matter of fact the sanguine force...actually permits itself to be captured by serious subjects (p. 44).

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Treatment of the Phlegmatic

The phlegmatic child poses a more difficult problem because of his/her apathetic and immobile nature. Here again those characteristics which s/he possesses must be taken into account. Things, objects and events do not affect the phlegmatic. The approach here is through association with his/her peers by sharing their interest and activities. Steiner (1966) states:

> Only by means of that particular suggestive effect, only through the interests of others, is it possible to arouse his interest. An awakening of the interest of the phlegmatic child will result through the incidental experiencing of the interest of others...(p. 50).

The interests of his/her peers are reflected in the personality of the phlegmatic child. Then the teacher would gradually surround him/her with objects and cause events to happen towards which the phlegmatic child would have a natural apathy. Teacher would use low interest material rather than high interest material to strengthen the child's interest and thereby reduce an apathetic attitude.

Treatment of the Melancholic

The melancholic, like the phlegmatic, is also indifferent to outer objects and events. S/he has the tendency to have little interest in anything but him/herself, his/her emotions and worries. It does little good to attempt to talk him/her out of his/her inner grief and pain or to cheer him/her up. S/he will only retreat further into him/herself. The approach is to direct his/her mood of sympathy, of sorrow and suffering from subjective to objective activity, to divert his/her feelings from the inner to the outer world. Again the teacher is the key to the melancholic child's situation. The sanguine child needs a teacher s/he can love, the choleric child needs a teacher s/he can hold in esteem an respect as worth and the melancholic child needs a personality or teacher who has tragic life experiences and sufferings. Steiner (1966) adds:

> In such a case, personality works on personality. If, therefore, at the side of the melancholic child there stands a person, who in contrast to the child's merely subjective, sorrowful tendencies, knows how to tell in a legitimate way of pain and suffering...tried by destiny...that the outer world has brought him; then such a person is aroused by shared experiences, this sympathy with justified pain (pp. 48-49).

The teacher's task is to present the lessons and arrange circumstances that include hindrances and problems...so that the child can experience real suffering and pain associated with the outer world. The best education for such a child is if the existing tendency to subjective suffering and grief can be diverted by being directed to outer hindrances and obstructions. Sacrificing him/herself for or helping children less fortunate than him/herself is an excellent way of displacing his/her own suffering and sorrows. To be self-sacrificing is one of the melancholic's positive traits.

Each temperament needs to be handled slightly differently. The same ideas apply to the methods of teaching a particular subject. The subject matter can be handled in such a manner as to engage each child in the lesson as well as affecting a balance in the individual temperaments. The following examples are an indication of how the four temperaments would be dealt with in a geography lesson (Bruchman, n. d.).

Teaching the Temperaments

The same rules apply in teaching and in the treatment of the four temperaments. The teacher should not fight against, suppress or ignore the temperament, but should make full use of the prevalent characteristics of each temperament.

Choleric Child - the choleric child likes action and excitement. Therefore, the presentation must be authoritative, fiery and dramatic. In the geography lesson, a vivid and graphic description of natural catastrophes -- volcanoes, tornados, floods, hurricanes will touch the very core of the choleric. These vividly described outer cataclysms are a reflection of what goes on unconsciously in the child. S/he can then draw pictures, make relief maps and write stories about the cataclysmic events of nature.

Sanguine Child - The sanguine child who has a tendency to flit from one impression to another will easily tire with long, tedious presentation. Lessons which change from one impression to another will be of more interest to the sanguine child. The child will derive much joy from a field trip where his/her senses are flooded with a myriad of impressions. His/her merry, lively eyes will absorb all and will miss little. S/he will be bubbling with enthusiasm to impart his/her experiences to his/her class peers and teachers. Since this type of child has difficulty organizing his/her impressions, it would be very helpful to the child to organize his/her impressions orally, in writing or in the form of a small map of the region.

The sanguine child would enjoy drawing a map with miniature cornfields, red barns, blue mountains, etc. The teacher can also influence the child by telling her/his personal impressions and feelings of the beauty of nature, the country and experiences of his/her childhood. This will also engender interest and hence concentrated attention in the child.

Whereas, the sanguine child is nearly always in a state of excitement, peacefulness flows over the phlegmatic child. Multiple and speedy impressions confuse the phlegmatic. S/he will shut them out to dream within him/herself. Change instills inactivity in the phlegmatic. The proper presentation for this type of child is one that is compatible with his/her temperament, that is, peaceful, long-winded, detailed explanations and characterizations or word pictures of nature and events. Carefully worked out descriptions of the mountainous deserts, homogeneous dunes and calm oceans are gratefully absorbed by the phlegmatic. A description of the tranquil South seas and ships gently riding the beautiful white caps, suddenly interrupted by pirate ships descending upon a peacefully British ship is good for the phlegmatic. It will shock him/her back into reality. It is at this moment of increased awakeness that the teacher can introduce new information into the lesson and increase the involvement of the phlegmatic child.

Whereas the choleric likes physical involvement and activity, the sanguine likes change and new impressions, the phlegmatic enjoys detail, long drawn out tasks once s/he is involved. Therefore it is good for the latter child to work with his/her class peers on projects. It is through the observation of his/her companions that his/her activeness will be best awakened and participation increased.

Melancholic Child - The melancholic temperament is perhaps the most difficult to involve in activities. S/he lives so intensely in his/her inner nature that s/he shuts him/herself off from outer nature. It is painful for him/her to deal with the realities of the outer world. His/her self-centered sympathies for him/herself must be directed outwardly. S/he must begin to feel the same concern for the outer world as s/he does for him/herself. This is done by directing the child's attention to the torrid and debilitating climates in which people have to live and how they have to struggle for their meager economic existence. S/he learns social feelings about the interdependence of human beings in the economic and social sphere. S/he must become acquainted with the poverty and miserable conditions of peoples of certain nations and in cities and industrial centers. To be made aware of the sacrifices and struggles of other human beings to bring certain goods and products to us is good for the melancholic. The description of dreary conditions and landscapes of the moorlands, the polar region, and the deserts will engender sympathy in the melancholic for the inhabitants. It is not only essential that the child knows the life sacrifices and struggles of his/her teacher, but that s/he is aware that every human being has a difficult destiny and everyone is sacrificing and contributing to the good of mankind. S/he must be led to see the good and beauty of life, permeating all mankind.

Whatever the child's temperament, s/he must be led to see the goodness in mankind and the beauty of the world shining through everything in life. S/he must feel the boundless goodness that benefits everyone and permeates all existence.

To create that, according to Steiner, is the major goal of education.

The four arithmetic process can be taught so as to appeal to each of the temperaments. For example, multiplication is repetitive addition and appeals to the sanguinic child; the concreteness and security of addition appeals to the phlegmatic; the deprivation process of subtraction is suited for the melancholic; and the challenging and "breaking down" characteristic of division is compatible with the organizational propensity of the choleric.

In some Waldorf schools, teachers attempt to group the children according to their temperament. The principle is that like repels like. The mirror effect of similar temperaments will magnify the negative characteristics. This reflective interaction will hopefully "wear the corners" off the temperament, diminishing the negative characteristics while enhancing the positive ones. Harwood (1963) romantically states:

> It is good practice to seat a child next to one another of the same kind. A phlegmatic will be bored by his phlegmatic neighbor and stimulated to some activity, just as a choleric will encounter opposition and become somewhat subdued. If all the children of like temperaments are seated together, the class will resemble an orchestra, with compact groups of strings, brass, woodwinds and percussions, and it is an orchestra that a teacher should think of his class, commanding

> and enjoying to the fullest the virtue and tones
> of all his human instruments (p. 166).

It is not a question of levelling the temperaments, but guiding the one-sided development along the right channels. It is only in the Waldorf Schools that temperaments are recognized and used educationally. This is possible because the class teacher remains with the same class for eight years, teaching all major subjects from grade one through grade eight. Waldorf education is an awakening process in which the teacher and children must recreate in themselves and adapt to the inner and outer situation in which they find themselves. Over the eight year period the children pass through the separate and distinct stages of development; the class grows together as a social-familial community. Lasting friendships evolve. The teacher not only gets closer to his/her pupils, but becomes, so to speak, a surrogate parent--a friend, a confidant--where responsibility, love and devotion develop. Insight into the personalities and temperaments is a natural product of this process. With her/his intimate knowledge of the children and the four temperaments, s/he is more able to develop her/his lessons on the basic personal needs of each child.

Steiner felt that it was hardly possible to bring about the coordination of education and development of the child successfully if the child has a different teacher every year, just as it would be hardly possible to bring him/her up properly if s/he were to have new parents each year. A child needs to have a continuing authority to look up to in school and at home during these years. Therefore, the responsibility of the Waldorf teacher is a heavy one. Her influence on and responsibility for the social and educational development for the child is almost equal to that of the parent. The continuous teacher is appropriate in these days of high divorce rate, single parent families and working parents. Some urban school districts have adopted a continuous teacher policy in which students remain with the same teacher for two-three years. In the high schools the homeroom teachers is the counselor-confident to his/her student through the high school years.

The teacher's knowledge of personality differences based on the four temperaments gives her/his an additional tool in assisting in the child's development. The following statement best sums up the role of the temperaments in the social development of the child:

> For if a child can overcome his/her temperament by working it off in childhood there are hopes that s/he will be able to achieve the ideal of commanding at will the virtues of all the temperaments. There are occasion in life - cocktail parties and the like - where a person properly puts on a sanguine temperament. If s/he has to drive through a congested city, s/he will do well to practice the patience of a phlegmatic. When some ideal has to be fought for, s/he should take the untiring sword of the choleric. For his/her inner life of philosophy or religion s/he needs the meditative depth of the melancholic (Harwood, 1966, p. 168).

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Les Tempéraments et L'Education de Waldorf

Les écoles de Waldorf, fondé en 1919, a Stuttgart, Allemagne, qui se sont agrandies a 500 écoles dans vingt-trois pays ont adopté le practice hétérodoxe d'organiser et d'instructer les enfants selon leur tempéraments. Rudolf Steiner (1925-1961), fondeur du mouvement de

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Waldorf, a réveillé la connaissance des anciens Grecs des quatre types de la personnalité: la melancolie, le flegmatique, le sanguin, et le colérique. Il a qualifié leur caracteristiques et a developpé une méthodologie de l'instruction compatible qui augmente le développement de chaque enfant. Puisque un instituteur Waldorf reste avec le meme groupe d'enfants dès la première année de l'école jusqu'à la huitième, il/elle devient un quasi-parent. L'instituteur continu va non seulement connaisser intime les enfants dans son garde, mais peut avoir une influence significative sur leur morale, et leur développement émotional et académique. L'emploi de tempéraments apparemment travail puisqu'il a été une partie integral de la méthodologie de Waldorf pour soixante-dix ans. Les instituteurs de SALT peut utiliser cette information comme l'enfoncement.

Die Temperamente und die Waldorf-Schulen

Die Waldorf-Schulen, die 1919 in Stuttgart gegruendet wurden, sind zu 500 Schulen in 23 Laender angewachsen. Sie nahmen die ungewoehnlichen Praxis an, die Kindererziehung nach den Temperamenten der Schueler zu organizieren. Rudolf Steiner (1925-1961), der die Waldorf-Bewegung gruendete, stellte das Bewusstsein der alten Griechen von vier Persoenlichkeitstypen: melancholisch, phlegmatisch, sanguinisch, und cholerisch wiederher. Er charakerisierte Eigenschaften dieser Persoenlichskeitstypen und untwickelte eine entsprechende Erziehungspaedagogik, um die Entwicklung jedes Kindes zu foerdern. Da ein Waldorf-Lehrer dieselbe Schuelergruppe von der ersten bis achten Klasse unterrichtet, wird er ein Quasielternteil. Der ueber lange Zeit gleichbleibende Lehere wird nicht nur mit den

Kindern in seiner Aufsicht eng vertraut; sondern kann auch erheblichen Einfluss auf ihre moralische, emotionelle und akademische Entwicklung nehmen. Die Verwendung dieser Temperamentstypen ist anscheinend wirkungsvoll, da sie seit siebzig Jahren ein Bestandteil der Waldorfer Methodenlehre ist. Die SALT-Lehrer koennen diese Information als Hintergrund benutzen.

Los Temperamentos y la Educación de Waldorf

Las escuelas Waldorf, establecidas en el año 1919 en Stuttgart, Alemania y que actualamente cuanta con 500 escuelas en 23 paises, han adoptado la práctica no ortodoxa de agrupar y enseñar a los niños según sus temperamentos. Rudulf Steiner (1925-1961) fundador del movimiento Waldorf, revivió la clasificación de los antiguos griegos de distinguir cuatro tipos de personalidad: melancólica, flemática, sanguinea y colérica. El clasificó estas características y desarrolló una metodología educativa especializada para cada grupo. Como cada maestro de Waldorf se queda con el mismo grupo de niños desde el primero hasta el octavo grado, el se convierte en un cuasi-padre para ellos. Este tipo de maestro llegua a conocer intimamente a los niños a su cargo y además puede tener una influencia significativa sobre su desarrollo moral, emocional y académico. El uso de la clasificación según temperamentos apraetamente ha servido, puesto que se ha convertido como una parte integral de la metodología de Waldorf por 70 años. Esta información podría ser aprovechada por los maestros de SALT.

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The Influence of Accelerated Learning Methods on Scholastic Achievement: Implications for Teacher Education?

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Abstract. This study examined the influence of accelerated learning techniques on inner-city, elementary school students' academic achievement. Students were randomly assigned to experimental groups, in first and fourth grade, for a whole academic year. Students taught by teachers trained in the use of accelerated learning had higher scores than controls in reading, but not in math. A general trend of lower percentiles was found at the end of the school year for controls, while little change was found for experimentals. A discussion of the value of this new approach in teacher education includes a critical analysis of intervening variables.

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Research on teaching practices that improve student performance is increasing as American educators examine new ways to maximize teacher training. An emerging area that appears promising is that of accelerated learning and teaching, which has documented positive results in several areas (Haines, 1982; Johnson, 1982; Palmer, 1985; Portes & Foster, 1986; Hardy & Mershon, 1982). A basic feature found in the literature is that of positive suggestion, whereby the limbic system is activated effectively in ways that support cognitive learning (Machado de Andrade, 1986). A recent meta-analysis of research in this field suggests that a positive, and perhaps significant, effect is achieved across various content areas and ages (Palmer, 1985).

A most critical problem in accepting this new vein in educational theory and practice concerns the question of whether intellectual development can be accelerated or increased. This question concerning the acceleration of development and/or knowledge acquisition has not always fared well in education. Many fear that children will be hurried through their childhood (Elkind, 1979).

Within the mainstream of cognitive psychology, this same question has been posed (Detterman & Sternberg, 1988) and duly criticized (Brown & Campione, 1988). Acceleration methods have been addressed from Piagetian-inspired models with little success (Nagy & Griffiths, 1982). Some approaches have tried to speed rates of learning through the use of advance organizers, programmed instruction and educational objectives in improving school learning (Halberg, 1984). Different theoretical perspectives on learning, instruction and the human brain are employed to account for positive results. Yet, it may be that the above models meet a certain number of the conditions necessary for learning optimally (Gagne, 1970) and may be considered successful to the extent that they help maintain those conditions in actual practice.

The purpose of this paper was to provide an empirical evaluation that assesses the effect of such practices in an elementary school setting, and to determine if the ongoing application of accelerated learning methods produced a significant improvement in learning performance. Of particular interest was the question of whether the method works effectively for elementary-aged children. This question was of relevance in that there is little information regarding the effects of accelerated learning intervention programs with first and fourth graders in the literature (see Schuster et al., 1987). Secondly, if significant differences were evidenced, the question of differential effects on different types of performance on the Comprehensive Test of Basic Skills (CTBS) was also of research interest. It may be that certain content areas are more subject to treatment effects than others. Findings in this area may be of both theoretical and practical relevance in determining specific areas where this approach is most useful.

Method

Fifty-one first grade and forty-seven fourth grade students were randomly assigned at the beginning of the 1984-85 school year to treatment and control conditions in a low-income, desegregated, urban elementary school. At each grade level, a teacher was trained and certified in the use of acceleration teaching methods in a series on two three-day workshops led by L. Dhority. During the first weeks of the Fall semester, scores were collected for CTBS at both grade levels. In the Spring, the CTBS was again administered. The data were analyzed to examine the effects of treatment. As a check on the random assignment procedure, performance data were collected during the start as well as at the end of the school year. Pretest scores did not differ significantly between experimentals and controls.

Due to the relatively small sample size, alpha was set at the 0.10 level of significance. For the first graders, Kindergarten data were available for reading and math. Several cases were missing complete data and were excluded from the analyses.

Results

A two-way analysis of variance was conducted for each achievement area, controlling for sex and grade level to assess the overall effect of treatment. For reading, the results were statistically significant, F, (1,76) = 2.7, p<.IO, but this was not the case for math, F(1,76) = 0.44, p>.50. As Table 1 shows, the results approached marginal significance and reveal an interesting pattern. Sex and grade differences were not found to be statistically significant in each of the performance areas. However, the pattern of pre and post differences in Figure 1 shows a positive trend for experimentals. For example, a t-test of the difference in pre and post means for experimentals was not significant t(42) = .54, p>.60, but for controls, the decrease in performance level is statistically reliable, t(36) = 2.42, p<.02. It should be noted that although standard scores rose over the year for both groups, the relative standing of individuals within groups decreased for the control group only.

Discussion

The data suggest differential effects of treatment by content area after controlling for sex and age differences. Students in the accelerated learning classes showed more progress than controls within the period of one school year in reading. Given the present sample size, the effect size of treatment appears moderate and to be of practical significance for this content area. Future research on the

Table 1. Means and Standard Deviations for CTBS Performance Measures

		Experimentals (n=43)		Controls (n=39)	
		M	SD	M	SD
Reading	Grade 1	48	30	44	33
	Male	44	28	42	31
	Female	52	26	46	36
	Grade 4	53	25	35	21
	Male	52	19	34	19
	Female	53	31	38	29
	Total	50	26	40	29
Math	Grade 1	50	28	44	24
	Male	45	31	45	23
	Female	55	25	42	26
	Grade 4	37	17	37	30
	Male	39	18	35	28
	Female	35	17	39	38
	Total	44	25	41	26

potential benefits of accelerated learning techniques in reading appears warranted. The lack of effectiveness of this method in math suggests that techniques for accelerated learning may yet need to be developed.

The study's findings suggest that accelerated learning methods for teaching show promise for improving the academic performance of elementary age children. These data represent an important addition to the growing body of methods that improve learning in children. The results are also important in supporting the theory of whole brain learning. More research is needed in other schools and grades before specific training is advisable for teacher education purposes. As with any educational innovation that is being empirically evaluated, care is advised in generalizing the present findings.

There are a number of potential threats to internal validity in a study of this kind. For example, variation in teacher background characteristics besides those directly attributable to accelerated training techniques and philosophy such as sex, experience, aptitude and the very enthusiasm possibly generated by motivated teachers could all play a role. Follow-up and replication studies are needed to explore the value of the present innovation in education. However, as was noted earlier, it may be that the present teaching approach captures a number of critical elements already known to contribute towards effective teaching. It should be noted that any approach or methods that promise improvement in the academic performance of students deserve full consideration. In sum, whether it is a simple "teacher involvement" effect or the actual influence of these methods on the human brain's capacity to learn remains to be seen as more current implementations are evaluated in the area of accelerated learning and teaching.

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L'Influence des Méthodes pour la Compréhension Accélérée sur l'Accomplissement Scolastique: Les Implications pour l'Éducation d'Instituteur?

Cette étude examine l'influence des techniques pour la compréhension accélérée sur l'accomplissement académique des étudiants d'école primaire dans la ville intérieure. Les étudiants étaient assigné au hasard aux groupes expérimentaux, dans la première année a la quatrième année de l'école, pour toute l'année académique.

Les étudiants enseigné par les instituteurs qui étaient instruit dans l'emploi des techniques de la compréhension accélérée, avaint les résultats plus haut que les contrôles (les étudiants qui n'etaient pas dans les groupes expérimentaux) dans la lecture, mais non dans les mathématiques . Une tendance générale des pourcentages plus bas était observé a la fin de l'année scolastique pour les contrôles pendant que l'on a observé que peu a changer pour les expérimentaux. Une analyse décisif des variables qui peuvent intervenir est incluse dans une discussion de la valeur de cette nouvelle approche en l'éducation de l'instituteur.

Der Einfluss der Methoden des Beschleunigten Lernens auf die Akademische Leistung: Enstehehn Folgerungen fuer die Lehrerausbildung

Diese Untersuchung berichtet ueber den Einfluss der Methoden des beschleunigten Lernens auf die akademische Leistung von ghetto Grundscheuler. Die Schuerlrer des ersten und vierten Schuljahrs wurden wahlos in Versuchsgruppen eingeteilt, und in diesen Gruppen ein Jahr unterrichtet. Die Schueller, die von Lehrern, die in der Praxis des beschleunigten Lernens ausgebildet worden waren, unterrichtet wurden, erzielten in Vergleich zur Vergleichsgruppe hoehere Noten im Lesen aber nicht in Mathematik. Im Allgemeinen wurde am Ende des Schuljahrs eine Tendenz zur niedrigeren Noten in der Vergleichsgruppe, aber wenig Aenderung in der Versuchsgruppe festgestellt. Diese Abhandlung, die sich mit dem Wert diesser neuen Vorstellungen in der Paedagogik beschaeftigt, schliesst eine kritische Analyse der Variablen ein.

La Influencia de los Métodos del Aprendizaje Acelerado Sobre los Resultados Escolásiticos: Las Implicaciones para el Entrenamiento de Maestros

Este estudio examina la influencia de las técnicas del aprendizaje acelerado sobre los resultados academicos de los alumnos que viven en los barrios urbanos de las ciudades. En este programa se escogieron al azara varios alumnos del primer y cuarto grado para grupos experimentales por un año escolar. Los alumnos enseñados por maestros entrenados en el uso del aprendizaje acelerado calificaron mejor en la lectura que los alumnos del grupo de control, con la excepción de matemáticas en la que se encontró una reducción en los porcentajes hacia el final del año escolar para los niños en el grupo de control mientras que se notó poco cambio in los alumnos del grupo experimental. En una discusion del valor de este nueve método para maestros valdría incluir un análisis de las variables intervenientes.

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Creative Writing and Visual Imagery Activities in an Experimental Reading Program

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Jean Taylor, Huntley Hills Elementary School

Abstract. In this time-series study, 32 remedial reading students at Huntley Hills Elementary School (DeKalb County, GA school district) participated in a 1984-85 SALT program modified to include a creative writing exercise as a substitute for one half of the relaxation-visualization activities normally employed. California Achievement Test average posttest scores were high (8th stanine). However, the average pre- post test gain score per student (2.375 months gain/month) was considerably less than in SALT programs conducted during 1981-84 (3.86 months gain/month on the Stanford Diagnostic Reading Test) or during 1974-81 (4 months gain/month on the Spache Diagnostic Reading Inventory).

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Introduction

I began the fifth grade in the Fall of 1951 and, like the times, was a simple, unsophisticated child, satisfied with simple, unsophisticated pleasures. Among them was the use of my visual imagination: seeing with my mind's eye was as natural as kicking a football and was even more fun.

The hottest news in 1951 after Korean War headlines was the "attack of the primitives" (Dean Acheson's phrase) led by Senator Joseph McCarthy on the "subversives" who supposedly permeated American society. I recall the drama of McCarthy's rise and fall not because I was particularly alert to its importance at the time but because of the images imprinted in my memory when I later read Mr. Acheson's memoirs.

The other thing I remember clearly about 1951 was what happened every day after recess in Mrs. Johnson's fifth grade classroom. Notice I mentioned what happened after recess, not recess itself.

After twenty minutes of tackle football played on the hard packed dirt playground behind Canton elementary school, the boys joined the girls and trooped back into our classroom for a rest period. We put our heads down on our desks, and after a short pause, listened as our teacher read to us from her collection of Hardy Boys stories and Nancy Drew mysteries.

Tired from the playground, I was content to yield myself up to this experience. Soon I was completely relaxed, my mind filled with a flow of images portraying the adventures that unfolded in my mind based on Mrs. Johnson's reading.

I could see Frank and Joe Hardy encountering poisonous snakes in *The Secret of Wildcat Swamp*. I could feel their loneliness and despair as they looked down at the earth from their out-of control blimp in *Castaways of the Stratosphere*. I remember those stories so vividly that if a Hardy Boys quiz contest is ever held, I will surely win. What was Chet Morton's sister's name? Lola, of course!

These memories have lingered, yet it was not until a few years ago that I began to examine them in a professional light. I know now why those stories are still a part of my life. There are three reasons. First, I was in a receptive mood when I heard them. My mind was clear. I had just expended considerable energy on the playground, and I was relaxed and ready for a change. Second, I was a visualizer. The mental images evoked by my teacher's words flowed effortlessly, and were so real that I felt I was actually in a theater watching a play performed by the characters in those books. And third, my motivation was high. What could have been better than to take time out from regular studies for an activity that was so pleasant?

I would like to emphasize this fact: those stories remained imprinted in my mind, more so than newsworthy politics or even football heroes. I must rely on books like *Present at the Creation* to evoke images of Joe McCarthy and upon old issues of TIME to remind me that Dick Kazmaier was Princeton's All-American single wing tailback that year.

The authors believe that relaxation and visualization are valuable, not just as peripheral, change-of-pace activities, but are in themselves powerful teaching tools which can be integrated into an instructional program in such a way that learning, particularly reading comprehension, is greatly improved. When they are combined with the deliberate use of the power of suggestion and with some familiar, standard components of a good reading program, results are surprising and impressive.

Jean Taylor, a veteran remedial reading teacher in Georgia's Dekalb County school district, experimented with relaxation, visualization, and suggestion in her classes for several years. She achieved a solid track record of high gain scores, averaging four months gain per month of instruction (measured on the Spache Diagnostic Scale) during 1974-83 and an average of 3.86 months gain per month of instruction on the Stanford Diagnostic Reading Test during 1981-84 (Prichard and Taylor, 1976, 19878, 1980; Lozanov, 1978; Bancroft, 1974, 1983; Caskey, 1980, 1981, Schuster and Gritton, 1986).

She used relaxation both to prepare students for associating visual imagery with lesson matter material and to ease them into a mental state in which they were more likely to accept suggestions related to self worth and ease of learning.

As the sequence of instructional activities developed by the authors is examined, it becomes evident that much traditional "good teaching" occurred along with those activities designed to tap the visual imagery learning modality.

No less a reading authority than Albert Harris has stated that this approach is "...a new development in the application of psychological techniques to education, and one worth watching."

During the early years (1974-80) of experimentation, the authors employed varying amounts of relaxation-visualization activity in hope of finding an optimal level. The 1984-85 data reported here were obtained for the purpose of comparing the results of a change (for experimental purposes) in an classroom routine that had been consistent during 1981-84. Time devoted to relaxation-visualization activities was cut by one half; a creative writing exercise was substituted in the activity cycle on alternate days.

The Accelerated Learning Remedial Reading Cycle

The remedial reading cycle employed previous to 1984-85 consisted of two 45 minute classes (containing four or five students) devoted to the same lesson. Before 1980, classes met each day for 80 days (one semester minus pre and post testing time). After 1980, classes met on alternate days for the entire year, an 80 day program spread over two semesters.

The cycle operated as follows:

DAY 1

PHONICS GAMES

Both commercially developed and teacher made phonics games were played for the purpose of furthering the acquisition of basic phonics skills. These games provided concrete, hands-on practice which students regarded as helpful and fun.

PRESENTATION OF NEW VOCABULARY

Vocabulary was introduced through an approach combining the contextual and kinesthetic methods. New words were paired on paper with a sentence in which they were used. For example:

Where__________is the cat going?

Students traced over the word, copied it in the blank, then took turns reading the sentence to other class members. Sentences consisted of minor wording and structural changes from the story to be read at the next class. An average of eight vocabulary words (including some sight words) were selected for emphasis in this manner.

RELAXATION REVIEW WITH MUSIC

(1) Students made themselves comfortable, closed their eyes, and relaxed.

(2) The teacher read a 3-4 minute mind-calming script designed to stimulate visual imagery in students' minds and to prepare their minds for the lesson material to follow. The script ended with suggestions emphasizing the worthiness and uniqueness of each student.

(3) The teacher read the vocabulary material over a musical background (Baroque, written in 4/4 time) according to a special pattern: pronounce the vocabulary word, pause, spell the word, pause, use the word in a sentence. Three tones of voice were rotated for successive word-spelling-sentence triads: normal (declarative), whisper (quiet, ambiguous), and loud (commanding). Students were encouraged to breathe naturally and comfortably along with the rhythm of the music and to see in their mind's eye the letters of each word as it was spelled, followed by the scene described by the sentence in which the word was used.

(4) After a short pause to allow the lesson material to sink in, suggestions for general health and academic excellence were given.

(5) Class members returned to their normal waking state as the teacher counted forward from one to five.

DRAMATIZATION

A play was enacted, providing oral reading practice of material containing the newly introduced vocabulary. The teacher-written play was adapted from story material to be read for comprehension testing purposes the next day.

ORAL REVIEW

The new vocabulary words were read aloud in turn by the students in order to further imprint those words on their memories before they left for the day.

DAY 2

PHONICS GAMES as during day 1

ORAL REVIEW: Students read yesterday's vocabulary list aloud PRESENTATION OF STORY MATERIAL OVER A MUSICAL BACKGROUND

(1) Students relaxed and let their breathing follow the music, as before

(2) Mind calming exercises were read by the teacher, as before

(3) The teacher read a page directly from the lesson (Barnell Loft, *Getting the Facts*, booklets A through F) over a classical musical background. Her delivery was emotional and dramatic, a theatrical rendition. Students were expected only to relax, enjoy the music, and open up their minds to their own visual imagery which was stimulated by the dramatic reading and the music.

(4) Pause for "sinking in" time, as before.

(5) Students returned to their wide-awake state, as before.

STUDENT ORAL READING OF STORY MATERIAL

Students read the story aloud from their lesson booklet. The teacher corrected any pronunciation errors.

COMPREHENSION CHECK

Students took the comprehension quiz provided in the Barnell Loft material.

The Experimental Variable

During 1984-85, a different activity was substituted during Day 2 for the "Presentation of Story Material Over a Musical Background" activity. Instead of that relaxation-visualization exercise, students participated in a creative writing task based on comic "autobiographies" (e.g. Garfield the Cat) presented in SPRINT magazine. Students read and then re-wrote the autobiographies, attempting to make the character's life story even wilder and more improbable than it already was. Creative writing activities like these have been shown to increase reading comprehension; it was felt by the authors that this activity provided an alternative to the regular activity that was worth evaluating.

Analysis

It should be clear that all of the instructional activities reinforced each other to a strong degree. Regardless of whether the old or the new cycle was employed, chances of student success were good when it came time for oral reading for testing purposes.

In Day 1, vocabulary was introduced with the help of context and tracing/copying, reviewed during relaxing time when students were encouraged to associate visual imagery with the new words, elaborated upon (read aloud) in a dramatic setting, and finally reviewed again. During 1984-85, a highly motivating writing task was included.

By the time students were finally required to read and be tested for their comprehension, they had been given a great deal of prepatory activity, including practice in many skills basic to reading. Phonics, sight words, use of context clues, creative writing, structural analysis (incidentally, in the correction of oral reading errors), and visualization were taught in a strongly positive-suggestive atmosphere highly conducive to learning.

Results

Thirty-two remedial reading students in grades 2 through 7 were pre and posttested with the California Achievement Test. The average gain score was 9.5 months. Since each child participated in a 45 minute per day, 80 day program meeting every other other school day for 160 days (the rest of the year was devoted to testing and staffing), it is appropriate to think of them as having received four months of instruction. The average gain per month of instruction was 2.375 months, indicating a considerable decrease from the 3.86 months gain/month average achieved during 1981-84 on the Stanford Diagnostic Reading Test.

Discussion

The most likely reason for the drop was the reduction by one half of the opportunities for students to employ their visual imagery modality. The substitution of a creative writing activity, while enjoyed by the students and thought to be worthwhile by the authors, appears not to have exerted as strong an accelerative-learning effect as did the full complement of relaxation-visualization exercises employed in previous years.

However, despite the drop in gain scores, students in these remedial classes still scored on average at the 8th stanine level on the California Achievement Test, placing them in the 90-95th percentile range of students tested nationwide. The school district average was the 5th stanine, corresponding to the 41-59th percentile range.

These data, while not generated from a true experimental design, nevertheless provide support for instructional programs that set out to create a strong positive-suggestive atmosphere and employ relaxation-visualization activities on a daily basis. The authors feel, as evidence continues to mount, that more teachers will begin to incorporate similar activities into their instructional routines.

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L'Écriture Créatrice et les Activités des Images Visuelles dans un Programme Expérimental de la Lecture.

Dans cette étude quasi-expérimentale, 32 étudiants qui avaient besoin d'améliorer la lecture a l'ecole primaire de Huntley Hills (le comté de DeKalb, le district, GA, de l'éducation) ont participé dans un programme de SALT en 1984-1985, modifé a comprendre un exercice de l'écriture créatrice en remplacement de la moiteé des activités de délassement-visualisation qui sont habituellement employés. Les résultats moyens apres l'examen de California Achievement Test (L'examen d'Accomplissement de California) etaient hauts (le huitieme stanine). Pourtant, l'augmentation moyenne des résultats d'avant-examen jusqu'à l'après-examen par étudiant (2.375 mois l'augmentation/mois) était considérablement moins que les résultats des programmes de SALT qui étaient conduits durant 1981-1984 (3.86 mois l'augmentation/mois sur le Stanford Diagnostic Reading Test (l'Examen Diagnostic de la Lecture de Stanford)) ou durant 1974-1981 (4 mois l'augmentation/mois sur le Spache Diagnostic Reading Inventory (l'Inventaire Spache de le Lecture Diagnostic)).

Kreative Schreib- und Visualisierungsuebungen in Einem Experimentellen Leseprogramm

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In dieser quasiexperimentellen Untersuchung nahmen 1984-85 32 Schueler der Huntley Hills Grundschule (im Kreis DeKalb, Bundesland Georgia), an Nachilfe Unterricht im Lesen teil. Ein modifiziertes SALT-Programm, in dem die Haelfte der normalerweise verwendenten Entspannungs- und Visualisierungssuebungen mit einer Uebung im kreativen Schreiben ersetzt wurden, wurde verwendet. Die Durchschnittsnoten der kalifornischen Leistungspruefung waren hoch (auf dem 8. Staninen). Aber die Zunahme der Punkte von der Vor- zur Nachpruefung (2, 375 monatliche Steigerung pro Monat) war erheblich weniger als in SALT-Programmen, die 1981-1984 zu monatlichen Steigerungen pro Monat von 3,86 im Stanford Diagnostic Reading Test fuehrten. 1974-1981 gab es eine Steigerung von monatlich 4 pro Monat im Spache Diagnostic Reading Inventory.

La Escritura Creativa y las Actividades de Imagenes Visuales en un Programa de Lectura Experimental

En este estudio cuasi-experimental, 32 alumnos inscritos en un programa de lectura remedial en la Escuela Primaria Huntly Hills (del distrito escolar de De Kalb county, GA) participaron en el programa de SALT durante los años 1984-1985 en donde modificaron el programa escolar incluyendo un ejercicio de escritura creativa como substituto de la mitad de las actividades de relajación-visual normalmente empleadas. Las post-calificaciones del examen de "California Achievement" fueron altas (octavo stanine). Sin embargo, el promedio de aumento en calificaciones pre y post examen fueron considerablemente mas bajo que aquel de los programas de SALT conducidos durante los años 1981-1984 (éste fue un aumento mensual de 3.86 cada mes ségun el "Stanford Diagnostic

Reading Test") o durante los años 1974-1981 (éste fue un aumento mensual de 4 meses según el Spache Diagnostic Reading Inventory).

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Using Neuro-Linguistic Programming in the Schools

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Abstract. Short-term psychotherapy has in recent years demonstrated that it is possible to produce successful outcomes within a brief time span. Though treatment occupying up to 15 sessions has been defined as short-term, the Neuro-Linguistic Programmers have claimed very positive results from single session interventions. Three of their change techniques: Submodalities, the "Swish", and the "Theatre" are described in this article. Cases are used to illustrate the applicability of these techniques to the school context.

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Introduction

To help our students learn more effectively, we attempt to make our teaching interesting and relevant. We assist them to take adequate notes, write better essays, read more fluently, and handle examinations successfully. Such help generates improvement in the learning performance of many students. However, at times something more is required. Psychotherapy is an area which can be very useful in providing that something more.

Therapy and education have much in common. Teachers and therapists are guides, helping students and patients respectively to realize more fully their human potential. They do so by facilitating learning, the former in order to have students remember information and the latter to promote healing.

Traditional therapy is not limited by time, the process conceivably occupying several years before a "cure" is effected. Such a lengthy procedure is not particularly appropriate to the school context. However, methods achieving positive results more rapidly are gaining wider acceptance (Beck, 1979; Davanloo, 1980, Malan, 1976; Sifneos, 1979).

These time-limited psychotherapy treatment methods do differ somewhat in approach; however all may by subsumed under Reich & Neenan's (1986) definition of short-term therapy as "Any therapy that rations the amount of time in therapy and uses this rationing as an integral part of the treatment". Such rationing, if it is to fit the definition, is limited to a maximum of 15 sessions. The success of short-term therapy in producing desired outcomes has been well documented (Basker, 1979; DeLaCour, 1986; Frankel, 1981). So too has the finding that length of treatment does not proportionally enhance therapeutic benefits (Jones & Vischi, 1979; Mumford et al, 1984).

The Neuro-Linguistic Programmers (Dilts et al., 1980; Bandler & Grinder, 1979) have redefined short-term therapy in terms of single session interventions. Experimental evidence does not as yet support many of their claims (eg. Heep, 1987; Sharpley, 1987). However, though NLP principles may not have received the imprint of respectability from the laboratory, clinicians in the field appear more enthusiastic (Einspruch and Forman, 1985; Sharpley, 1987).

Irrespective of the merits of NLP theory, their techniques do seem to produce desirable results over a wide range of contexts (Stanton, 1988 a & b). Education is one such context, and three particularly useful approaches, "submodalities", "swish", and the "theatre" are described in this article together with case studies illustrating how they might be put into practice.

Submodalities

One of these, Bandler's (1985) submodalities technique, asserts that we should not allow our minds to make us feel happy or sad in response to any picture they want to show us. Rather, Bandler suggests, we should use submodalities to control the way we feel. Thus, we could think of a pleasant memory and, by turning up the brightness of our image, make it even better. Conversely, to make an unpleasant memory inconsequential, we could dim the image, and push it away into the distance. Brightness and distance, together with size, colour, depth, duration, clarity, contrast, movement, and speed, are submodalities Bandler favours to modify mood state. He believes that these should be varied one at a time, allowing individuals to learn which one or ones work best for them.

The submodalities may then be combined to increase the change effect. Thus, a pleasant memory might first be seen as a movie rather than a still slide. It could then be pulled closer while, at the same time, it might be made increasingly bright and colorful. Making an unpleasant memory inconsequential could involve dimming it, reducing it in size, and removing the color.

Use may also be made of the association/dissociation dimension. An associated image is one in which the experience is relived as if it is being seen through the actor's own eyes, whereas dissociation has the memory image visualized with the actor as part of the scene. Associated memory recall encourages people to re-experience the original feeling response they had at the time the event took place. However, if recall is dissociated, people are usually able to see themselves in the picture, the original feelings present, but not being experienced internally.

Bandler believes it is preferable to see pleasant memories as associated, so that the positive feelings of the original situation can be re-experienced. With unpleasant memories, he favours dissociation, so that useful visual information may be received free of negative emotions.

Jill -- Dislike of mathematics.

Jill, a 14 year-old high school student, found mathematics difficult. She was usually able to pass her examinations, but because at times she struggled to understand the concepts, she developed an antipathy to the subject. As a result, she tended to put off doing her homework, spent a little time as possible working examples, and day-dreamed during lessons. As a result, her performance on tests and examinations was deteriorating.

Jill, in making use of the submodalities technique, began with identifying the picture that came to mind when she thought about mathematics in a negative way. This she described in terms of submodalities such as brightness, size, colour, distance, clarity, movement, and association/dissociation. Specifically, Jill's picture was a very powerful one, being seen as bright, large, colourful, close, clear, still and associated. To reduce the power of this negative picture, Jill had to discover which submodalities she needed to change. Size and distance were the ones she identified. By making the picture much smaller, and pushing it well away into the distance, as if she was looking at it down a long tunnel, Jill was able to reduce the power of her picture so that it no longer evoked strong negative reactions.

The submodalities technique can do more, however, than reduce the power of previously influential negative mental pictures. By using the attributes she had identified as influential, Jill was able to mentally develop another picture. In this she saw herself in the classroom, answering correctly a mathematics question posed by the teacher. By making this picture large and close, she invested it with considerable power. Other pictures epitomizing a positive attitude to mathematics were treated in the same way.

The result of this exercise was that Jill dramatically reduced her dislike of mathematics. Though it did not become one of her favourite subjects, she no longer felt any noticeable aversion to it. On occasions when she did feel an antipathy to the subject, Jill was able to use the submodalities of size and distance to reduce the influence of her negative thinking about it and to increase the power of the more positive thoughts which she had created.

As with most students who learn the submodalities technique, Jill made use of it in other areas of her life. By manipulating size and distance, she exerted considerable influence over her thoughts and in this way engendered a sense of increased control over her life. The Swish technique, which also uses submodalities, is another way in which students may achieve increased control over their thought processes.

The Swish Technique

One element of the "Swish" will always be association/dissociation, this being combined with two other submodalities, such as size or brightness, to create the desired outcome. Several steps are involved in the implementation of this technique, the first being identification of where or when people would like to behave or respond differently than they are now doing.

The second step entails identification of a cue picture, clarifying what it is that people actually see in that situation just before they start doing the behavior that they would like to change. This should be an associated picture, one that they see as if looking out of their own eyes, but without seeing themselves in it.

Creating an outcome picture comes next, this being a dissociated image of how they would see themselves differently if they had already accomplished the desired change. This image is to be adjusted until it is really attractive, drawing people to believe strongly that they can make changes in the way they want to.

The actual Swish begins with a person seeing the cue picture big and bright, then mentally placing a small dark image of the outcome picture in its lower right hand corner. This small, dark image is to be mentally "zoomed" so that it grows big and bright, covering the first picture, which will become dim and shrink away. the process must be fast, occupying only 1-2 seconds. Once the "swish" has taken place, the mental screen is blanked out or the eyes opened. The procedure is repeated a total of 5 times, each time with a blanking out of the screen or an opening of the eyes at the end of each swish.

The final step is a test, with the first image being pictured. If the swish has been effective, this will be difficult to do, for the picture will tend to fade away and be replaced by the second image of the person as he or she wants to be. If this does not occur, the swish pattern is to be repeated.

Margaret -- reading aloud in front of the class.

10 year-old Margaret, a primary school student, became extremely nervous whenever she was asked to read aloud in front of her classmates. Though quite an adequate reader, Margaret's nervousness interfered to such an extent that she would stumble over words she knew well, lose her place on the page, and generally become so upset that her voice would deteriorate into a mumble.

As a cue picture, seen through her own eyes, Margaret saw a book held in her hand and the other students looking at her. Her hand was shaking as was the book. In her outcome picture, she saw and heard herself in front of the class reading fluently, her bearing self-assured, and her voice strong and confident. This picture she "swished" to replace the unwanted cue picture of the unpleasantness that was present when she read aloud.

Interesting enough, after three repetitions of the "Swish", Margaret had difficulty in imagining the cue picture, this being an excellent indication that the technique was achieving the desired effect. In the final step, she was quite unable to bring this unwanted picture to mind.

In the ensuing weeks, Margaret's performance in reading aloud improved quite dramatically, as did her own self-esteem. With the previously negative cue of seeing the book in her hand as she faced th class now generating positive feelings of confidence and self-assurance, Margaret's fear of the situation had virtually vanished, enabling her to read smoothly and fluently. However, if changing the meaning of a cue through the "Swish" had not proven to be successful, Margaret may well have benefited from another NLP technique, specifically designed to remove fear.

Theatre technique

When using this technique, people imagine that they are sitting in the middle of a movie theatre. On the screen, they are to see a black-and-white snapshot of themselves in a situation just before the particular fear-provoking response occured.

They then float our of their bodies up to the projection booth of the theatre, from which position they can "watch themselves watching themselves". This double dissociation, in which people are able to see themselves sitting in the middle of the theatre, and also see themselves in the still picture on the screen, permits them to distance themselves from the events which have created their fears.

The snapshot on the screen is then transformed into a black-and-white movie which the person is to watch from his or her position in the projection box, until just beyond the end of the unpleasant experience. When people get to this end point, they stop the movie, turn it into colour, jump inside the picture, which makes it associated, and run the movie backwards to its starting point, taking only one or two seconds to do so. Everything is to take place in reverse, with people walking backwards, talking backwards, and appearing as ridiculous as possible.

An addition to this technique which appears to increase its efficacy is, after the movie has been run backwards, to then run it forward in colour, this time 'seeing' things the way people would have liked them to be. That is, they make things right, changing the initial fear provoking situation so that it becomes a success experience. After having done so, they float back into themselves sitting in the theatre and back to reality.

Craig -- fear of examinations.

This was the technique used by 15 year-old high school student Craig to overcome his dread of examinations. Though a capable student, he worried for weeks before his examinations, mentally preparing himself to fail by thinking of himself failing and the consequences attendant on this eventuality. Waiting outside the room in which the test was to be held was agony and, when he went inside, he was in such a state of high arousal that he rarely was able to do himself justice.

Craig used the theatre technique with two of his worst examination room experiences. As a black and white movie he saw himself waking up on the morning of the examination, dressing, eating breakfast, going to school, waiting outside the examination room, entering, struggling with the paper which asked for information he know but was unable to remember, mixing with the other students afterwards, realizing he had done very poorly, and finally receiving his failing grade. He stopped his movie some time later when he had recovered somewhat from this experience.

Craig then stepped into the picture, turned it into colour, ran it backwards, and added a comedy sound track of peculiar noises. Finally he re-ran the movie forward, this time 'seeing' himself handling the examination superbly well, the necessary information flowing from his pen effortlessly and accurately. Outside the room, he imagined the postmortems revealing that he had written excellent answers, an impression confirmed by the high grade he received.

Often, only one such incident needs to be used. However, in Craig's case, two previous very negative examination experiences bulked so large in his memory that it seemed advisable to remove the fear from both. That is what this technique does. By making a previously feared situation appear ridiculous, it creates a one-trial learning experience in which a person learns that fear is no longer necessary.

The double dissociation of visualizing himself in the audience and in the projection box enabled Craig to view the experience in a detached way, without the extremely unpleasant feelings it had previously invoked. This sense of remoteness helped him modify the fear that had been associated with the situation so that it no longer interfered with his examination performance. In the two years since making use of the 'theatre' technique, Craig has not recorded a single failure. Further, the marks he has received have been, on average, approximately 20% higher that those he achieved before defusing his fear.

Conclusion

The three case studies quoted in this article all deal with the issue of the retarding effect of fear on learning, a problem encountered by many students in their school careers. Alleviation of this fear was achieved through use of three NLP techniques, such alleviation enabling students to overcome obstacles which had been interfering with their progress. It is important to note that although the same basic problem was involved, each technique handled it slightly differently. No one method can be expected to achieve success for every student on every occasion, but, when several alternatives are available, an individual student is likely to find one that will produce the outcome he or she desires.

SALT practitioners will recognize the 3 techniques as preliminary goal imagery, or the George concept (Schuster & Gritton, 1986). In this, students are asked to prior to a lesson to visualize and feel themselves successful on the ungraded lesson quiz.

Despite their apparent simplicity, all three of the NLP approaches described in this article do have a high success rate. In my own experience at both primary and secondary school level, I have found that over 80% of students are able to make use of one or more of these techniques to overcome various learning problems. They have the great virtue of being easy to learn and easy to apply, not only to a specific problem situations, but also to a wide range of other difficulties which are inherent in growing up.

Many people doubt that such simple interventions can produce the positive outcomes which have been described in this article. To some extent, this is a function of our conditioning in that we are still wedded to the idea that insight must be gained into our problems before it is possible to arrive at solutions. However, if we can put aside such conditioning and focus on results, it does seem clear that NLP techniques such as those outlined above can be of considerable help to school students in resolving many of their problems.

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Emploi de la Programmation Neuro-Linguistique dans le Écoles

La psychothérapie a court terme avait démontré en les derniers ans qu'il est possible de produire les résultats réussis en peu de temps. Bien que le traitement qui dure jusqu'a 15 sessions ait defini à court terme, les Programmeurs Neuro-Linguistique avaient attribué tres bons résultats à une intervention d'une seule session. Trois de leur techniques de changer: Les Sousmodalitiés, "le Sifflement", et "le Théâtre" sont décrites dans cet article. Les exemples sont employés pour illustrer que ces techniques sont applicables dans le contexte de l'école.

Der Gebrauch des Neuro-Linguistischen Programms in den Schulen

Kurzfristige Psychotherapie hat in den letzten Jahren bewiesen, dass es moeglich ist, innerhalb wenigerer Zeit erflotreiche Ergebnisse zu erzielen. Obwohl eine Therapie

die bis zu 15 Termine hat, als "kurzfristig" definiert werden kann, haben die Befuerworten des neurolinguistischen Programms behauptet, dass sie sehr positive Ergebnisse mit einer einzigen Interventionssitzung erreicht haben. Drei Aenderungsmethoden -- die sogenannten Untermodalitaet-, "Swish-" und die "Theatermethoden" -- werden in dieser Artikel beschrieben. Dieses Methoden werden durch Fallbeschreibungen erlaeutet, die sich auf die Anwendung in Schulen beziehen.

El Uso de la Programación Neuro-Linguistica en las Escuelas

La psicoterapia de corta duración nos ha demostrado en los años recientes que es posible obtener muy buenos resultados en periodos relativamente cortos. Aunque 15 sesiones se consideran como duración breve, los programadores neuro-linguísticas han obtenido resultados positivos en sesiones intervencionales de una sola sesión. El autor presenta tres de estas técnicas en su artículo: la submodalidad, el Swish y el Teatro. El presenta varios casos para como estas técnicas se aplican en las esculas.

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The Other End of Bruner's Spiral: A Proposed Educative Procedure for Easy Integration of Knowledge

Win Wenger, Ph.D.

Project Renaissance

Abstract. Any educator interested in accelerating or enhancing learning should examine the issue of integrating the knowledge contents of school curricula. Jerome Bruner and others made a respected case for organizing curricula in "spirals." To "spiral" a curriculum, present a core of structural principles of understanding which are common to all fields of knowledge. Revisit each principle in more formal content at each rung up the educational ladder.

Key is transfer of understanding or knowledge from initial learning context to other contexts, if such learning is to be useful. Without an integrated understanding at base, few students remember the contents of their courses for very long.

The writer proposes a simple, easy means by which any school may experimentally induce a richly productive integration of knowledge in its students, even where none of its teachers or administrators or even texts are themselves equipped with such a core.

* * * * * * * * *

"All knowledge is my province."

--Roger Bacon

One of the main complaints about schools by some of their graduates is: that "each subject is taught in a box," so isolated from any other subject that little if any learning transfers from one course to the next even in closely related fields. Worse, for most, there is very little long-term RETENTION of knowledge. Nothing comes along to reinforce what was already learned at such effort and cost. Hence, most of schooling is a waste "except for the discipline of sitting in the classroom," and the frequently quoted definition: "Education is what you have left after you've forgotten everything you've been taught."

Objecting to this apparent waste, some have argued on behalf of integrating the school curriculum around a common core structure of knowledge. A curriculum so structured would see the contents of all subjects taught as examples of the common core principles in operation.

Some of those who argued for so integrating the school curriculum, from Aristotle on, concentrated mainly on isolating an identified core of structural principles around which the body of existing knowledge can be encyclopedically organized and assembled. Today's best candidates for that role appear to be these three "intellectual Rosetta Stones": information theory, cybernetics and the general theory of systems, which in turn are based on thermodynamics and the theory of entropy. Each of these conveniently describes in a single, simple way all structures or all relationships, which map out the same no matter in which discipline they may be studied.

Others who argue for so integrating the school curriculum, from Oliver L. Reiser (1958) to today's Mortimer Adler and his "Propedia" sector of ENCYCLOPEDIA BRITANNICA, have focused on presenting some identified core and general knowledge and principles in teachable form.

During the past two decades, educators were so swamped by other issues, it seemed that to consider so integrating knowledge was only an abstruse, postponable intellectual luxury. Left behind among others were the eloquent arguments and remarkable assertions of Jerome S. Bruner (1962), during the 1960s at the helm of Harvard University's Institute of Cognitive Studies.

Bruner argued that education should "spiral" the curriculum to structure all knowledge around a common core structure of universal principles. To "spiral" a curriculum, one presents a core of structural principles of understanding which are common to all fields of knowledge. Then one revisits each principle in more formal content at each rung up the educational ladder. Even the most advanced knowledge, Bruner declared, can be usefully represented in some form at even the earliest levels. "Any idea, no matter how advanced, can be taught in intellectually respectable form to any child at any stage of development," (if that idea is put into that child's current cognitive vocabulary). Ford and Pugno (1964), among many others, assembled not only such arguments but specific proposals by various writers, for integration within particular curriculum areas - math, English, social studies, and the natural sciences.

One highly promising area for integration of knowledge is the general theory of systems, which is the study of how things work together. Because the WAYS things interact have a common dynamic consistent from physics to sociology to art to economics, the general theory of systems presents an especially CONVENIENT set of physical principles around which CAN be assembled and organized most or all other academic fields. Such lines include Wiener (1961), von Bertalanffy (1968), Laszlo (1968), Kuhn (1964), and Miller (1971-3) among many others. This writer has argued that once a student is equipped with a basic understanding of the general theory of systems, most learners should be able to transfer virtually 100% of everything learned in any one subject into any other subject (Wenger, 1987a).

Current teachers are not interested in integrating the contents of school or academic curricula into a common structured spiral. However, the case for such integration does not appear to have diminished in any way. Indeed, concern over the quality of today's school graduates in America renders this case more acute than ever.

This paper does not intend an encyclopedic review of what now amounts to a mere faded lesson in the history of education. These few citings are but to indicate that the case, for so structuring and integrating the curriculum, is respectable and was respected.

Further, we suggest that this topic should be especially interesting to members of the Society for Accelerative Learning and Teaching (SALT), the major professional society in the U.S.A. mainly concerned with better methods of teaching and learning. A goal for better methods of teaching and learning IS such improved rates and qualities of learning and of long-term retention. IF such an integration can (1) reinforce prior learning, (2) improve current and future learning, (3) improve long-term retention, and (4) make what is learned more USEFUL subsequently, then such an integration of knowledge MUST be a central issue for any SALT member, and for any quality-minded educator.

One factor discouraging most teachers from integrating a common structure of knowledge throughout the curriculum is that most of the argument of this topic has been beyond the convenient intellectual reach of many teachers and their students. Even for those whose intellectual reach is longer, urgent pressures have usually forced attention to be switched to concrete matters far more understandable to school administrators, fellow teachers, and lay parents. Such difficulties explain, but do not excuse, the neglect of this topic among current American schools and professional teachers.

Yet matters need not be that difficult at all! Schools or educators who have some freedom to experiment, and to set up pilot projects, can very easily pursue the following very simple procedure. Instead of trying themselves to select or arrive somehow at a formal core structure of knowledge, use the following procedure to enable their STUDENTS to begin CREATING THEIR OWN INTEGRATED STRUCTURE OF KNOWLEDGE!

Even if no one in the school initially has any integrated structure of knowledge to work from, following this procedure will create one. Within a short time, it will enable its students to develop a high quality intellectual and aesthetic grasp of nearly all of what they have been taught to date. Such students will establish a strikingly high quality command of current and subsequent courses of study. Those students will build and demonstrate a very high rate of long-term retention, and render their schooling highly useful to their subsequent lives.

Here is that experimental procedure.

Integration Days: Getting STUDENTS to Integrate All Knowledge

Most schools have summer schools and/or intersessions wherein a student takes only one or two courses intensively, instead of five or six courses strung out.

Begin a pair of such courses, one in the mornings and the other in the afternoons as is the usual practice - but this time with the anticipation that such an integration will be attempted. Have the individual teacher or professor, several times during each such course, refer to this expectation and the coming "Integration Day." Have that educator also, along the way, indicate various points relating to previously taken courses - a practice which would be desirable in any case even without the experiment. At the conclusion of each pair of such courses, feature an "Integration Day."

Part of the evaluation of the students' degree of success in each course, and consequent grade, would be their observed performance during the processes of Integration Day. Integration Day would follow the final examination in each subject, and weigh as strongly as the exam in each student's grade.

During Integration Day: Set students the task of tracing out the relationships and structural similarities between the two courses just taken. Set them also the task of tracing out such relationships and structural similarities between that pair of courses and previous course subjects.

Use intensely focused classroom management techniques (see Wenger, 1987b) to direct students to work in pairs, in threes, in small buzz-groups and in plenary larger groups using a modified dynamic symposium format. Project Renaissance will be pleased to supply the details for such focused interactive processing. Generally this is free, though 3 oz. postage and pre-addressed reply label would be appreciated.

Important: repeat this Integration Day procedure for the same students through a sequence of three or more courses. The second Integration Day will be at least ten times richer in intellectual product than the first and the third such day will be several times richer than the second, as integrative context builds from course to course.

Have each teacher of those courses present, involved in and supporting this integrative process. Yet this building comprehension and integration can be accomplished through these Integration Days and concurrent anticipation of such days even without those teachers.

Also recommended: include many tape recorders and even some clerical services for transcribing select portions of the resulting recordings. The resultant intellectual integrations will emerge in forms which may be useful for more than those particular participating students: that is, useful to other teachers and students beyond the boundaries of the project.

Instead of just one course at a time, it is better to have two just-completed courses to compare. Three, especially for the first Integration Day, could make the task too complex. Make the pair of courses the basis of the first integration, and reach back from there to integrate what had been learned previously.

More important than exactitude or "being right" is to build a kind of intellectual fluency during Integration Day. Encourage students each to begin generating many responses and to get into a productive flow toward the desired integration. Every relationship not immediately recognized by the teacher is not necessarily an error when voiced by the student. Most errors and trivialities will wash away anyway during the "sort-down" phase of Integration Day, especially in the modified symposium format.

Scheduling

Summer schools and intersessions usually do not afford enough time for a third course or second pair of courses, much less a third pair of courses. To build an integrative context of two or three Integration Days may require some special scheduling adjustments.

Ideally, organize the entire school year for the participating students. Run two courses at a time, each pair running intensively for several weeks. Cap each pair with an Integration Day, with later such days building beyond the results of earlier days.

Faculty arrangements in such a schedule

Each participating teacher would teach such courses only for those several weeks unless teaching several such courses. This might entail some scheduling difficulties for the school's regular faculty, such as requiring a substitute teacher.

This project is an opportunity for engaging high quality instructors from the community and elsewhere without the expense of a year's appointment. Many leading researchers, educators and truly emeritus educators, could be available to such a three-week project who otherwise would not. While such scheduling does call for some adjustments, the difficulties do not seem to be very great. The advantages, vis-a-vis briefly "capturing" top faculty from elsewhere, may well be very great.

Conclusions

Even though few educators, and fewer schools and texts, are presently equipped with any integrated structure of knowledge for the curriculum, this presents little difficulty. Following the structured format as recommended will induce the students to create a better integration and grasp of understanding than could be taught them. The issue here is getting students to describe the desired understandings in their own perceptions, rather than memorizing someone else's. That Socratic issue of drawing-forth "educating", as contrasted to didactic teaching, extends far beyond the bounds of this particular experiment.

The outcomes of the project, getting students to create their own integrations of knowledge in the ways described above, should include--

1. Very high long-term retention (and restored, recovered retention of prior learnings) by students, of the contents of their courses.

2. Very high quality student understandings of the contents of those courses--past, current and subsequent.

3. Very much higher quality performance by students in their subsequent courses.

4. A very much higher rate of usefulness of course contents to the students, since more of their learning will transfer to other contexts. This improved usefulness may, in turn, lead to expanded public support for education as the public perceives greater value received.

5. A body of integral understandings which will add meaning to the lives of everyone involved. This body of understandings will aid not only the participating students, but in some instances other teachers and students.

Results from one such test project should encourage further such studies. These can lead toward a time when the educative ideal can truly be achieved: where everything learned and everything encountered adds rich meaning to everything else ever learned or encountered, forever.

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L'autre Bout de la Spirale de Bruner: Un Procédé Éducatif Proposé pour l'Intégration facile de le Connaissance.

Aucun éducateur que s'intéresse à la compréhension accélérée et/ou améliorée devrait s'intéresser surtout a l'intégration de la connaissance dans le plan d'études. Jerome Bruner et d'autres ont fait un cas respecté pour organiser le plan d'études en "spirales", chacure

présentant un noyau de principes édifiants de la compréhension qui sont commun a tout les domaines de le connaissance, révisitant chaque principe avec plus formale contenance a chaque échelon, montat l'échelle éducative. Sans telle compréhension intégrée à la base, peu d'étudiants retiennent la contenance de leur cours pour tres longtemps, ou ne les trouve utile ni a la compréhension de leur cours suivants ou à la vie. Moins sant capable de transférer ce qu'ils ont appris des contextes initials à des autres contextes. Par contraste beaucoup ou la plupart d'étudiants avec tel noyau de la comréhension intégrée sont capable de faire tous ces choses et bien plus, tres bien tenant avec les buts de n'importe quel éducateur que s'intéresse à améliorer les résultats éducatifs. L'auteur propose une simple, facile manière au moyen qu'une école quelconque peut provoquer expérimentalement une intégration richement productive de la connaissance dans ses étudiants, même où rien de ses instituteurs ou de ses administrateurs ou de ses textes d'études sont eux mêmes equipés avec tel un noyau.

Das Andere Ende der Brunerspirale: Eine Paedagogischer Methodenvorschlag zur Leichten Integration von Wissen

Der Paedagoge, der sich fuer beschleunigtes und verbessertes Lernen interessiert, sollte sich vor allen Dingen fuer die Integration des Wissens in das Schulecurriculum interessieren. Jerome Bruner und andere machten einen beeindruckenden Fall fuer die Einordnung des Lehrplans in Spiralen. Jede Spirale stellt einen Kern von strukturellen Prinzipien da, die alle Wissensgebiete gemeinsam haben. Jedes Prinzip wird auf jeder Stufe der Ausbildungsleiter mit erweiterten Inhalt wiederholt. Ohne ein integriertes Verstaendnis auf der Basis erinnern sich nur wenige Schueler ueber laengere

Zeit an die Kursinhalte, noch halten sie diese fuer hilfreich im Buzug auf weiterer Kurse oder fuer das Leben im Allgemeinen. Wenige koennen die Zusammenhaenge des urspruenglichen Lernens zu anderen Situationen herstellen. Im Vergleich dazu besitzen vielen oder die meisten Schuler, die einen Kern von integriertem Verstaendnis erhalten haben, die obengenannten Faehigkeiten und noch viel mehr. Dies stimmt mit den Zielen eines Paedagogen ueberein, der sich fuer die Verbesserung von Lernergebnisse interessiert. Der Autor schaegt eine einfache Methode vor, die es jeder Schule moeglich macht, versuchtsweise den Schuelern ein reiche und productive Integration von Wissen zu vermitteln. Das ist sogar moeglich wenn weder die Lehrer, noch die Schulverwaltung oder die Lehrbuecher mit einer solchen Basis ausgestattet sind.

El Otro Terminal del Espiral de Bruner: Un Procedimiento Educativo Para la Integración Facil del Conocimiento

Cualquier educador dedicado al aprendizaje adaptado o accelerado debe interesarse en como integrar el conocimiento al programa de estudios escolares. Jerome Bruner y otros nos convencieron del valor de organizar un programa de estudios en una forma espiral con centros comunes y principios estructurales en todos los campos del conocimiento. Se repite cada principio con mas contenido formal en cada etapa de la educación. Según ellos, pocos estudiantes pueden recordar el contenido de sus cursos sin este entendimiento al fondo. Tampoco encuentran útiles sus cursos en la vida real o en su educación futura. Es decir, pocos son capaces de hacer la transferencia de un contexto inicial a otros. Por conparación, muchos de los estudiantes

que tienen entendimienots céntricos del estilo espiral pueden hacer todo esto y aún más, lo cual es conforme a las metas de cualquier educador que se interesa en buenos resultados educativos. El autor propone un método muy sencillo para introducir de manera experimental esta integración productiva para sus estudiantes, aún en lugares donde los maestros, administrados y textos no tienen el entrenamiento especial para hacerlo.

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